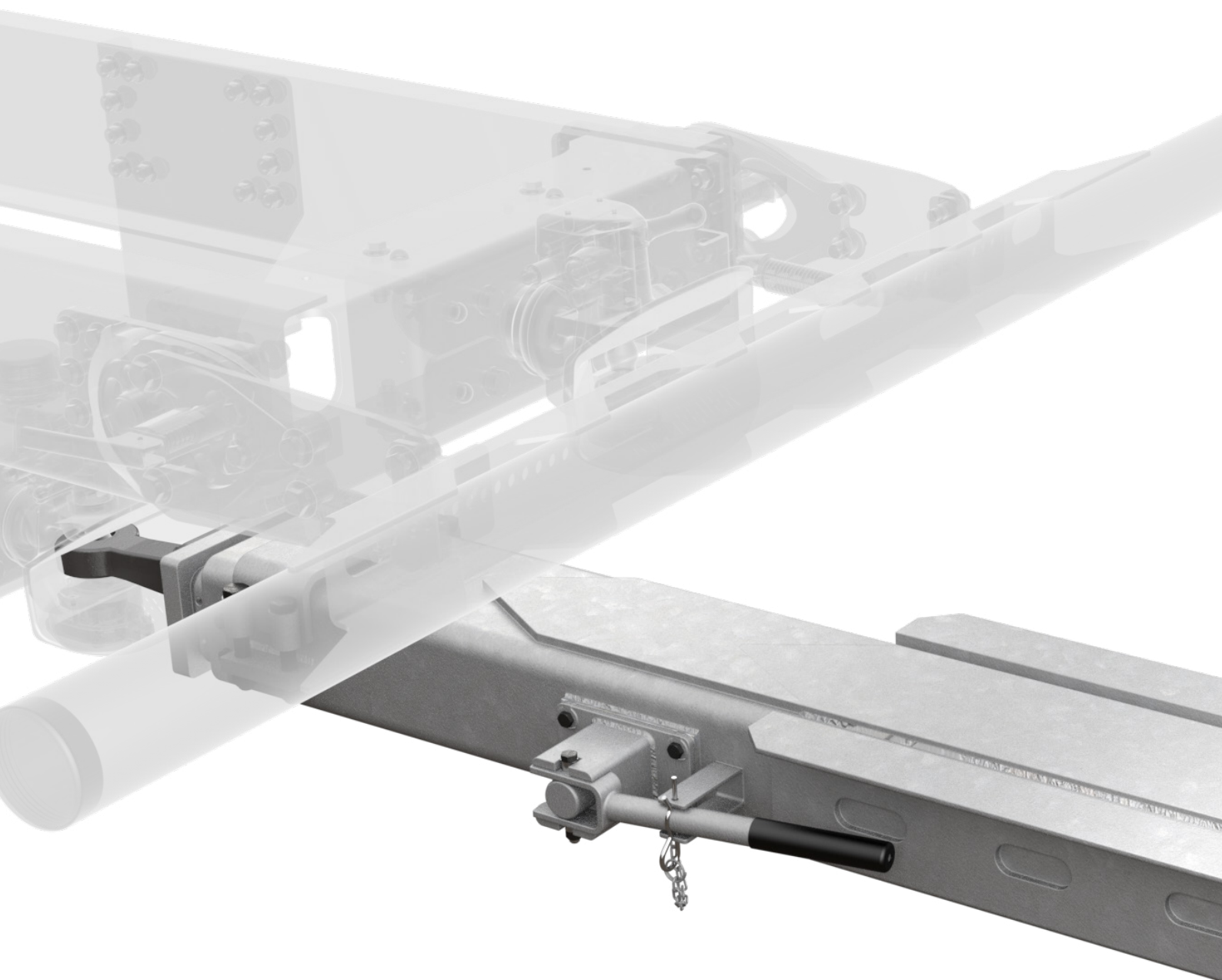
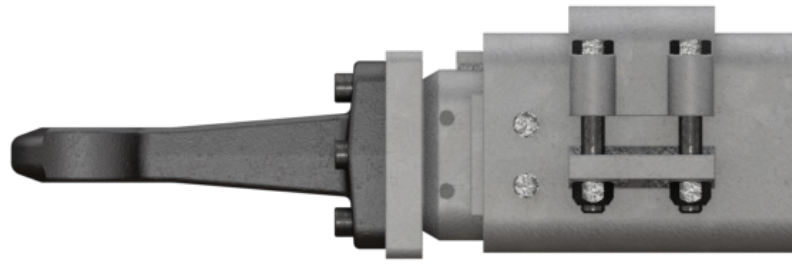


RINGFEDER DRAWBAR ASSEMBLIES

For centre axle drawbar trailers and turntable drawbar trailers

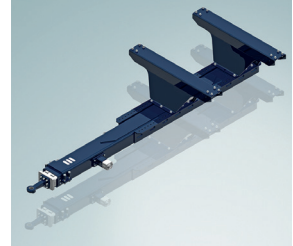




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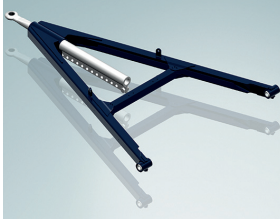


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Page 31 Drawbars



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PRODUCT OVERVIEW

Rigid drawbar type

Function

Rigid

With screw-on crossmembers

Height adjustable

Length adjustable

Page

ZD	ZDM	ZEQ	ZFL
○	○	○	
	○		○
		○	
			○
14	18	20	22

Drawbar type

Function

Rigid (normal profile)

Rigid (lightweight profile)

Angled towing eye

Rigid central tube (Y shape)

Swivelling towing eye

Cranked drawbar

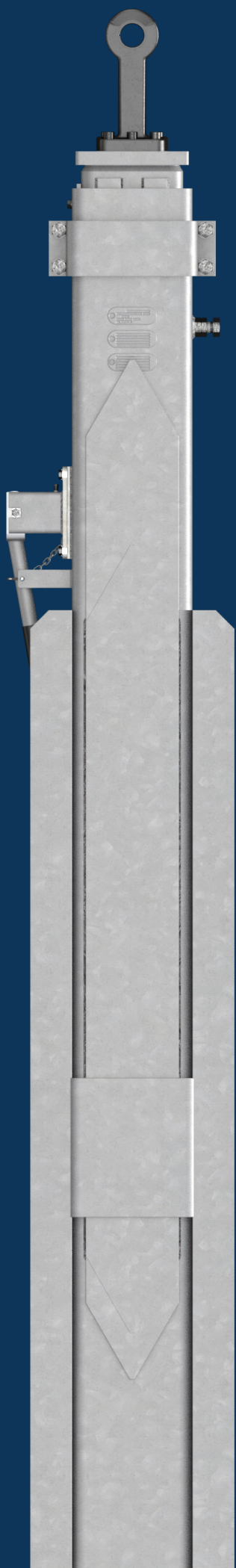
Length adjustable

Length adjustment (semi-)automatic

Length adjustment > 600 mm

Page

TBZ	SL	ZGS	PZM	PZMS	PZS	PZSG	PZG	PZGL/PZLG	PZL
○		○	○	○	○	○	○	○	○
	○								
		○		○					
			○	○					
					○	○			
						○	○	○	
								○	○
32	34	35	36	37	38	40	41	42	44



QUALITY

EXPERTISE/PORTFOLIO

- Broad portfolio of drawbar assemblies

AN OVERVIEW OF YOUR BENEFITS:

- Excellent corrosion protection with cathoretic dip-coating (KTL_{Zn})
- Robust and long-lasting design for all components
- High level of availability and delivery performance
- Always the right solution for your needs
- Individual consultation

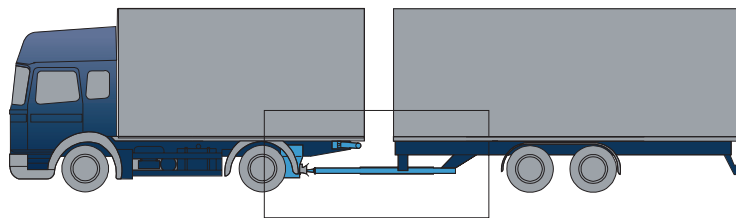
SAFE AND RELIABLE. RINGFEDER DRAWBAR ASSEMBLIES.

Drawbar assemblies form the link between the tractor unit and the trailer vehicle. These components are designed to continuously and reliably transfer all the relative forces between the towing vehicle and the trailer. This means they are some of the most safety-critical components on the whole commercial vehicle.

The choice of drawbar assembly depends on the tractor-trailer combination that is being used. The two main combinations are composed of a tractor unit with a centre axle drawbar trailer or a tractor unit with a multi-axle drawbar trailer and turntable steering. Ringfeder offers a complete range of drawbar assemblies for both combinations.

HOW A CENTRE AXLE DRAWBAR TRAILER WORKS:

These trailers have up to a maximum of three axles in the centre of the vehicle. A rigid drawbar on the vehicle frame forms the connection to the tractor unit. The central position of the axle(s) enables the trailer to be steered. The drawbar installation is described as 'rigid' because horizontal as well as vertical forces are transferred. As a static load, these forces are between min. 4% and max. 10% (or 2,000 kg) of the gross trailer weight. To improve the driving characteristics, centre axle drawbar trailers are coupled as low down as possible below the tractor unit.



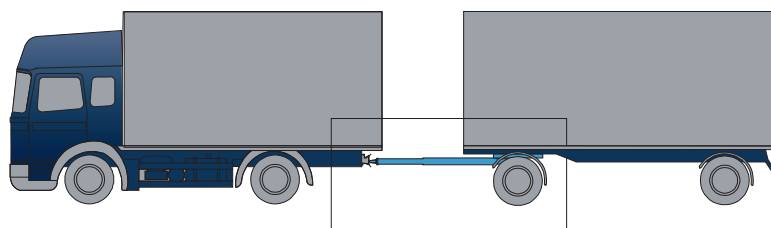
Tractor unit with
centre axle draw-
bar trailer

SAFE

HOW A TURNTABLE DRAWBAR TRAILER WORKS:

The turntable drawbar trailer is steered using a separate pivot joint. For this purpose, the rigid front axle of the trailer is housed in the chassis so that it can be turned via a rotating frame with a turntable. The Ringfeder product range includes double-row turntables for this purpose, which offer an impressive level

of high quality and a long service life. The drawbar and the associated height-adjustment devices are attached to the turntable frame. This equipment is available in various versions and can be coupled low down like rigid drawbars.



Tractor unit with
turntable drawbar
trailer

Configuration of drawbar assemblies in accordance with ECE Regulation No. 55

The most important characteristic values for drawbar assemblies in accordance with ECE Regulation No. 55 are calculated as follows:

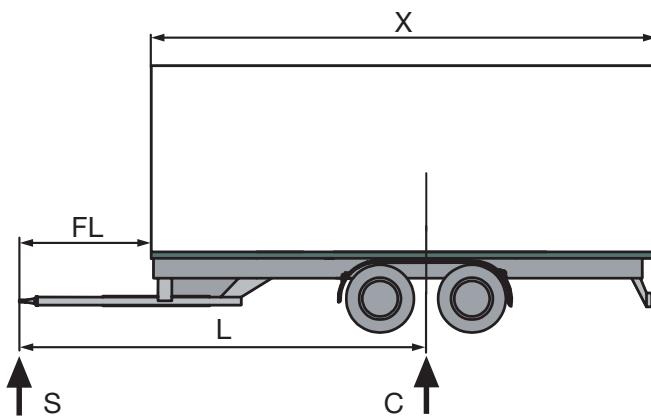
The V value must be determined in combinations of vehicles with a centre axle drawbar trailer and is defined as the theoretical reference force for the vertical component of the drawbar force between the towing vehicle and the centre axle drawbar trailer (unit of measure: kN).

The maximum permissible V values are declared for Ringfeder drawbar assemblies such as hitch

blocks and rigid drawbars. The smallest V value of all drawbar assemblies used in a vehicle combination is decisive.

Mechanical drawbar assemblies that transfer drawbar loads (such as rigid drawbars and hitch blocks in centre axle drawbar trailers) must be marked with a maximum permissible Dc value.

Mechanical drawbar assemblies that cannot transfer drawbar loads (such as drawbars and hitch blocks on turntable drawbar trailers) must be marked with a maximum D value.



The V value can be calculated using the vehicle data:

X = Length of the loading area of the trailer (m)

L = Theoretically free drawbar length

a = Vertical acceleration at the coupling point

1.8 m/s² for towing vehicles with air suspension

2.4 m/s² for towing vehicles with other suspension

C = Gross weight of the trailer (t)

$$V \text{ (kN)} = \frac{a \cdot C \cdot X^2}{L^2}$$

The Dc value can be calculated as follows:

T = Permissible gross weight of the towing vehicle (t)

C = Axle load (t) of the loaded centre axle drawbar trailer when coupled

g = 9.81 m/s²

$$Dc \text{ (kN)} = \frac{g \cdot T \cdot C}{T + C}$$

The D value can be calculated as follows:

T = Permissible gross weight of the towing vehicle (t)

R = Permissible gross mass of the turntable drawbar trailer (t)

g = 9.81 m/s²

$$D \text{ (kN)} = \frac{g \cdot T \cdot C}{T + R}$$

Example calculation for the configuration of a centre axle tractor/trailer combination

Permissible gross weight of the towing vehicle T = 22,000 kg

Vertical acceleration of the towing vehicle with air suspension a = 1.8 m/s²

Drawbar load S = 1,000 kg

Permissible gross weight of the trailer C = 18,000 kg

Length of the loading area of the trailer X = 7,820 mm

Theoretically free drawbar length L = 6,555 mm

Free drawbar length FL = 2,300 mm

The Ringfeder ZD 18 rigid drawbar (V max. = 54.0 kN/Dc = 110 kN) and the Ringfeder AB 75 hitch block (V min. = 75 kN/Dc = 130 kN) are sufficient for this case.

We would be happy to calculate the V and Dc values for your vehicle combination on request so that the appropriate Ringfeder drawbar assembly Ringfeder rigid drawbar and Ringfeder hitch block) can be selected.

$$V = \left\{ \frac{X}{L} \right\}^2 \cdot a \cdot C$$

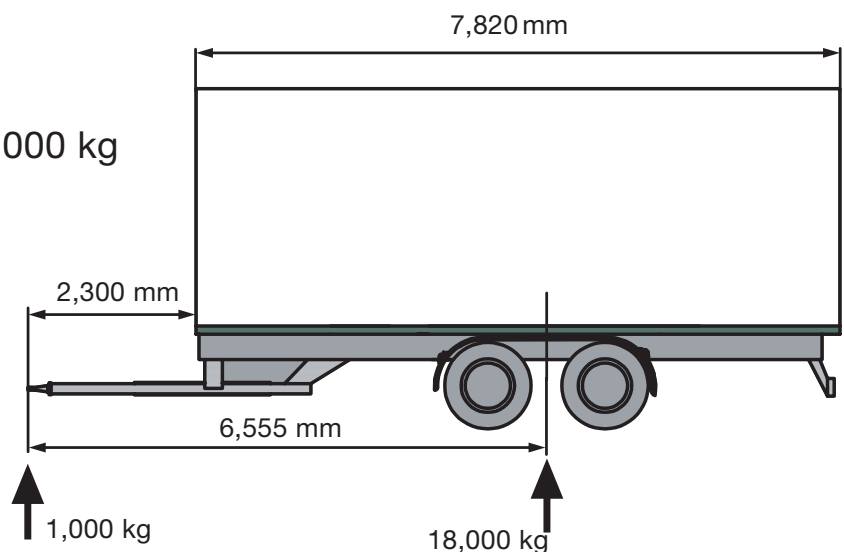
$$V = \left\{ \frac{7,820 \text{ mm}}{6,555 \text{ mm}} \right\}^2 \cdot 1.8 \text{ m/s}^2 \cdot 18,000 \text{ kg}$$

$$V = 46,112 \text{ N} = 46.1 \text{ kN}$$

$$D_c = \left\{ \frac{T \cdot C}{T + C} \right\} \cdot 9.81 \text{ m/s}^2$$

$$D_c = \left\{ \frac{22 \cdot 18}{22 + 18} \right\} \cdot 9.81 \text{ m/s}^2$$

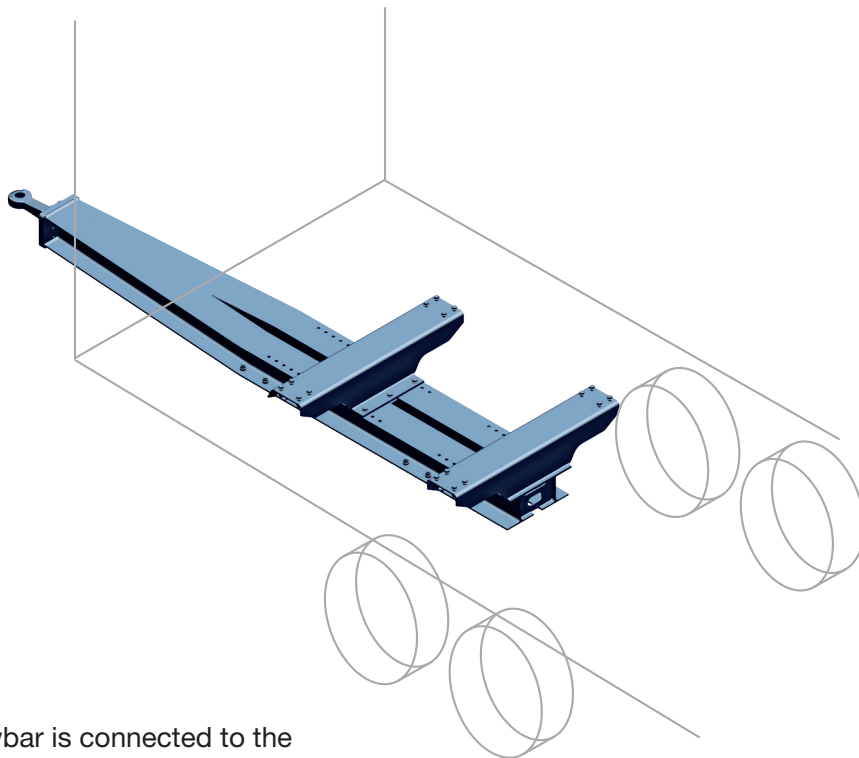
$$D_c = 97.12 \text{ kN}$$



For assembly on the trailer. Rigid drawbars from Ringfeder.

The Ringfeder rigid drawbar is a drawbar installation for centre axle drawbar trailers that is installed on the vehicle frame of the trailer. It is designed for centre axle drawbar trailers with a permissible gross weight of 6 to 24 t

and provides a reliable drawbar assembly for conventional transport.



The rigid drawbar is connected to the vehicle frame and forms the link to the tractor unit. In addition to tractive and braking forces (horizontal forces), it also transfers part of the gross trailer weight to the tractor unit via the drawbar load and also the dynamic drawbar load during braking (vertical forces).



RINGFEDER RIGID DRAWBARS – FEATURES AND BENEFITS

- For centre axle drawbar trailers with a permissible gross weight of 6 to 24 t
- Drawbar load up to 2,500 kg
- Various versions are available:
 - Rigid, length-adjustable or height-adjustable
 - Different towing eye types
 - Special versions for higher tonnages
- With ECE approval or individual certificate
- Treated with zinc phosphate, with cataphoretic dip-coating (KTL_{zn})
- Expert advice and calculation of characteristic values (e.g. for optimum matching of the Ringfeder hitch block and the Ringfeder rigid drawbar)
- High level of corrosion resistance due to galvanised inner tubes in drawbars with variable length

Ringfeder rigid drawbars up to 24,000 kg

ZD series, rigid

(ECE approval)

In addition to the standard dimensions shown in the tables below, the following options are also available on request:

- ▶ Special versions with a higher V value
- ▶ Use of other towing eye types
- ▶ Other dimensions

Please see the data sheet on our website for further information.

Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.

TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE (kN)	RINGFEDER NO.	WEIGHT (kg)
ZD 06 Dc= 35 kN 6 t Drawbar load 500 kg Tube 160x160 With individual certificate	Ø 40 ZE 13/1 DIN 74054-40D L2=250	2,900	1,700	15.3	51.31.06.0100	87
		3,200	1,800	14.1	51.31.06.0101	94
			1,900	13.1		
		3,500	2,000	12.2	51.31.06.0102	101
			2,100	11.4		
ZD 10-1 ¹⁾ Dc= 70 kN 10 t Drawbar load 1,000 kg Tube 140x140 ECE no. E1*55R01/07*30 18	Ø 40 ZE 13/1 DIN 74054-40D L2=250	2,900	1,700	30.8	51.31.10.0100	142
		3,200	1,800	28.5	51.31.10.0101	156
			1,900	26.5		
		3,500	2,000	24.7	51.31.10.0102	169
			2,100	23.0		
ZD 13,5-1 ²⁾ Dc= 90 kN 13.5 t Drawbar load 1,000 kg Tube 160x160 ECE no. E1*55R01/07*30 19	Ø 40 ZE 13/1 DIN 74054-40D L2=250	2,900	1,700	48.9	51.31.14.0100	165
		3,200	1,800	43.6	51.31.14.0101	182
			1,900	42.7		
		3,500	2,000	40.1	51.31.14.0102	199
			2,100	37.7		
		3,800	2,200	35.5	51.31.14.0103	214
			2,300	33.6		
			2,400	31.8		
			2,500	30.1		
			2,600	28.6		

¹⁾ Also available cranked 150 mm on request. ²⁾ Also available cranked on request.

For use of other towing eye types, see page 28.

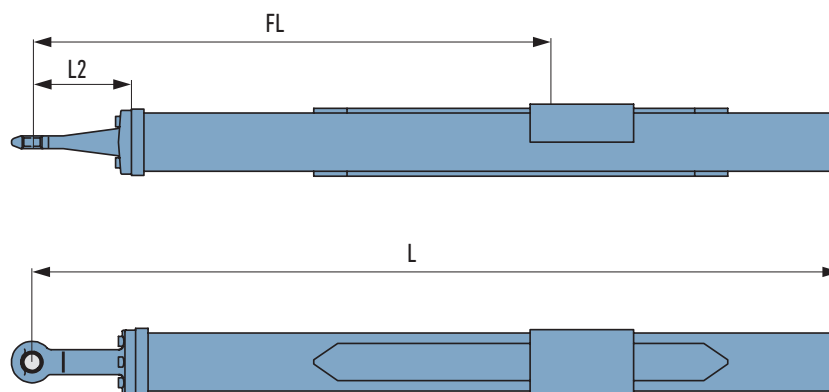
Additional U-bolt for tube 140x140, 03.114.00.02.0

Additional U-bolt for tube 160x160, 03.114.00.01.0

Additional U-bolt for tube 250x150, 03.114.00.03.0

Additional U-bolt for tube 220x220, 03.114.00.22.0

Additional U-bolt for tube 260x180, 03.114.00.04.0



TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE (kN)	RINGFEDER NO.	WEIGHT (kg)
ZD 18 ³⁾ Dc = 110 kN 18 t Drawbar load 1,000 kg Tube 250 x 150 ECE no. E1*55R01/07*30 20	Ø 50 D50-C DIN 74053-50D1 L2=250	2,900	1,700	76.5	51.31.18.0124	226
		3,200	1,800	71.7	51.31.18.0118	250
			1,900	67.4		
		3,500	2,000	63.5	51.31.18.0119	274
			2,100	60.0		
			2,200	56.9		
		3,800	2,300	54.0	51.31.18.0105	294
			2,400	51.3		
			2,500	48.9		
			2,600	46.6		

³⁾ Also available cranked on request.

TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE (kN)	DRAWBAR LOAD (kg)	RINGFEDER NO.	WEIGHT (kg)
ZD 20-1A Dc = 130 kN 24 t Drawbar load 1,000 kg Drawbar load 2,000 kg Tube 220x220 ECE no. E1*55R01/07*30 21	Ø 50 D50-C DIN 74053-50D1 L2=250	2,900	1,700	90.0	75.0	51.31.20.0110	214
		3,200	1,800	90.0	75.0	51.31.20.0114	238
			1,900	90.0	75.0		
		3,500	2,000	87.0	75.0	51.31.20.0105	256
			2,100	82.4	72.6		
			2,200	78.2	68.4		
		3,800	2,300	74.4	64.6	51.31.20.0104	277
			2,400	70.9	61.1		
ZD 24-1A ⁴⁾ Dc = 130 kN 24 t Drawbar load 1,000 kg Drawbar load 2,500 kg Tube 260x180 ECE no. E1*55R01/07*30 22	Ø 50 D50-C DIN 74053-50D1 L2=250	2,900	1,700	90.0	75.0	51.31.24.0126	250
		3,200	1,800	90.0	75.0	51.31.24.0120	275
			1,900	87.4	72.7		
		3,500	2,000	82.6	67.9	51.31.24.0110	300
			2,100	78.2	63.5		
			2,200	74.2	59.5		
		3,800	2,300	70.5	55.8	51.31.24.0122	325
			2,400	67.2	52.8		
			2,500	64.1	49.4		
			2,600	61.3	46.5		

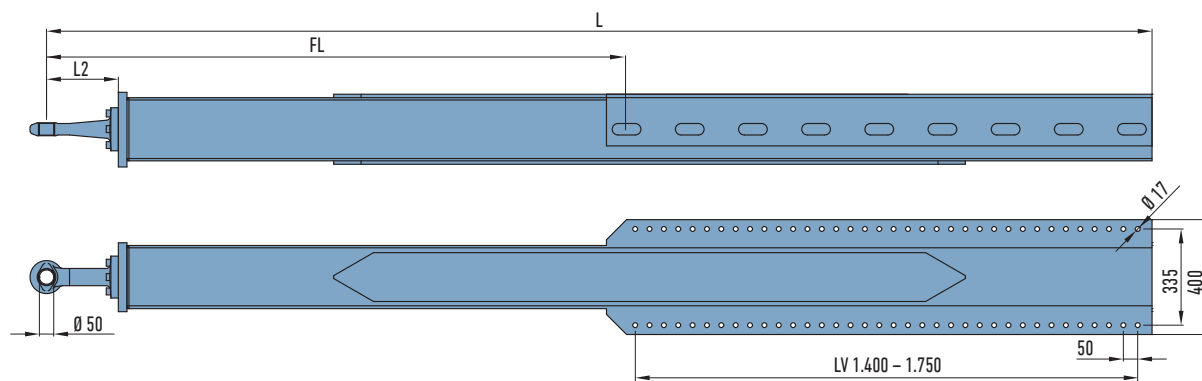
⁴⁾ Also available cranked on request.

For use of other towing eye types, see page 28.

Ringfeder rigid drawbars up to 24,000 kg

ZD series, rigid, bolted on with adjusting rail

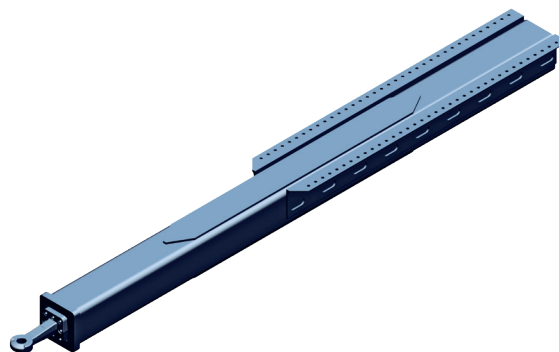
(ECE approval)



In addition to the standard dimensions shown in the tables below, the following options are also available on request:

- ▶ Special versions with a higher V value
- ▶ Use of other towing eye types
- ▶ Other dimensions

Please see the data sheet on our website for further information. Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.

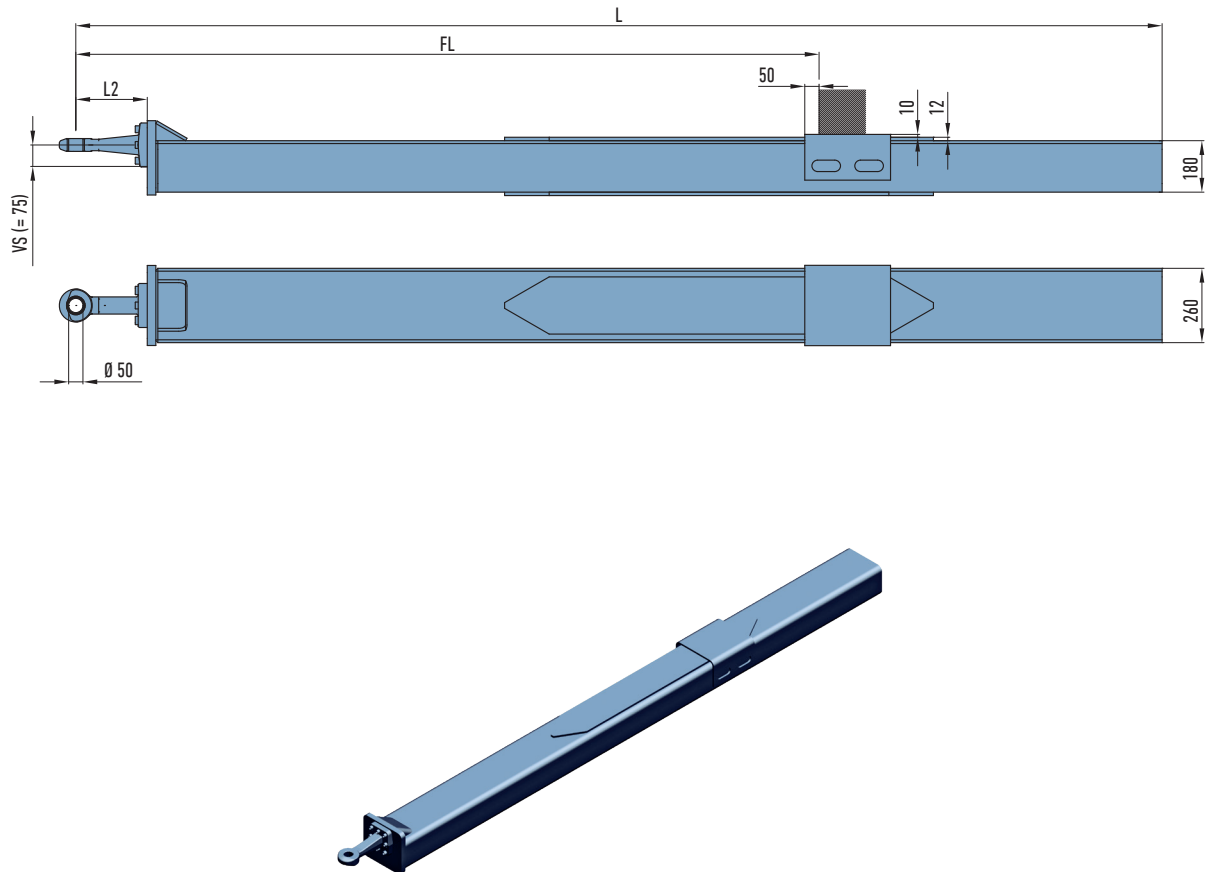


TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	LENGTH OF ADJUSTING RAIL LV (mm)	MAX. V VALUE (kN) DRAWBAR LOAD (kg)		RINGFEDER NO.	WEIGHT (kg)
					1,000	2,000		
ZD 20-1B ¹⁾ Dc = 130 kN 24 t Drawbar load 1,000 kg Drawbar load 2,000 kg Tube 220x220 ECE no. E1*55R01/07*30 21	Ø 50 D50-C DIN 74053-50D1 L2 = 250	2,900	1,700	1,400 – 1,700mm	90.0	75.0	51.33.20.0002	260
		3,200	1,800		90.0	75.0	51.33.20.0004	297
			1,900		90.0	75.0		
			2,000		87.0	75.0		
		3,500	2,100	Drilling pattern 335 x 50 x Ø 17	82.4	72.6	51.33.20.0003	315
			2,200		78.2	68.4		
		3,800	2,300		74.4	64.6	51.33.20.xxxx	336
			2,400		70.9	61.1		
			2,500		67.7	57.8		
			2,600		64.7	54.9		

¹⁾ Combination of ZD20-1B with bolted crossmembers on request (with individual certificate).

ZD series, rigid, with height offset towing eye

(ECE approval)



TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	TOWING EYE OFF-SET VS (mm)	MAX. V VALUE (kN)	RINGFEDER NO.	WEIGHT (kg)
ZD 24-2A ²⁾ Dc = 130 kN 24 t Drawbar load 1,000 kg Tube 260x180 ECE no. E1*55R01/07*30 22	Ø 50 D50-C DIN 74053- 50D1 L2=250	2,900	1,700	75 (Standard)	81.2	51.31.24.xxxx	250
		3,200	1,800		81.2	51.31.24.0140	275
			1,900		81.2		
		3,500	2,000		75.0	51.31.24.xxxx	300
			2,100		72.9		
		3,800	2,200		69.7	51.31.24.0130	325
			2,300		66.3		
			2,400		63.1		
			2,500		60.1		
			2,600		57.5		

²⁾ The standard height offset of the towing eye is 75 mm. Other special dimensions available on request.

For use of other towing eye types, see page 28. For additional U-bolts, see page 14.

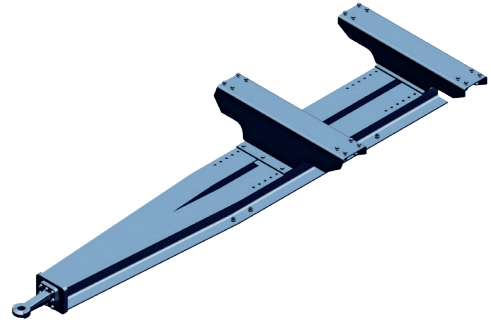
Ringfeder modular rigid drawbar up to 24,000 kg

ZDM 20 series, rigid, crossmembers bolted on

The ZDM 20 modular rigid drawbar consists of a rigid drawbar and two bolt-on crossmembers. With minimum supporting width (SW) of 1,100 mm, these can be bolted on every 50 mm.

The as-delivered condition is unmounted. Pre-assembled units are also available on request.

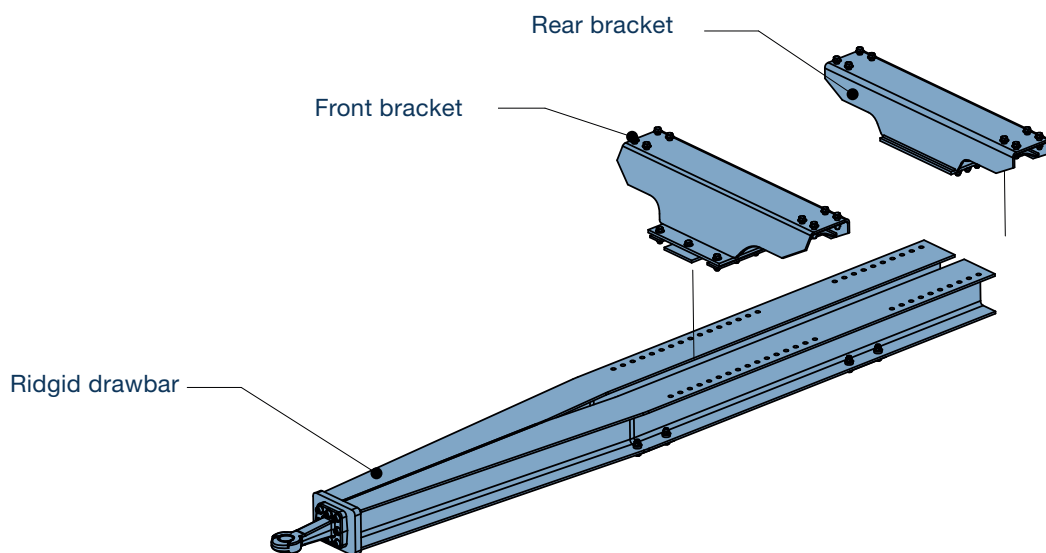
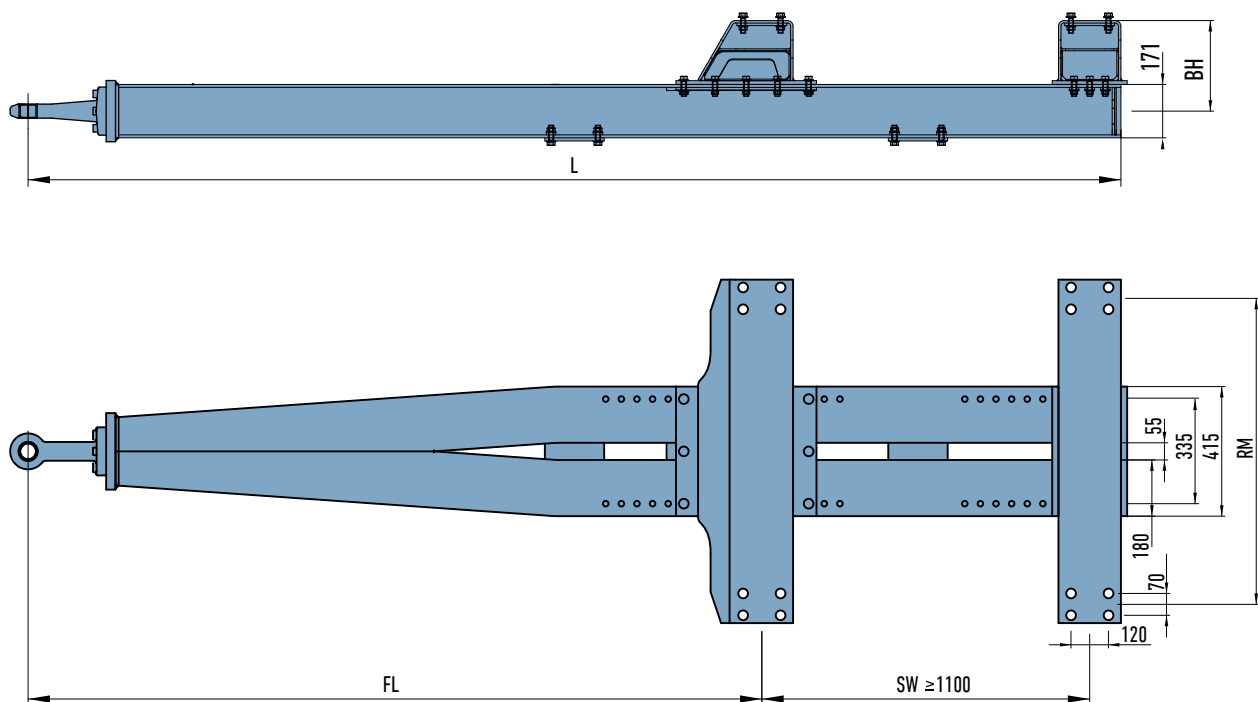
Use of the crossmembers in combination with other series is available on request. (See assembly and operating instructions.)



TYPE	TOWING EYE (DIN)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	FRAME CENTRE RM (mm)	OVERALL HEIGHT BH (mm)	MAX. V VALUE (kN)	RINGFEDER NO.	WEIGHT (including crossmembers, kg)
ZDM 20 Dc = 130 kN 24 t Support width (SW) min. 1,100 mm Drawbar load 1,000 kg HEA profile 180 With individual certificate	Ø 50 D50-C DIN 74053-50D1	3,500	2,100	980 1,100 1,200 1,300	220 270 320 370 420 470 520 570	63.2	51.34.20.0017	388
			2,150			61.5		
			2,200			59.9		
			2,250			58.3		
			2,300			56.8		
		3,800	2,350			55.4	51.34.20.0016	410
			2,400			54.1		
			2,450			52.8		
			2,500			51.5		
			2,550			50.3		
		4,200	2,600			49.2	51.34.20.0018	438
			2,650			48.0		
			2,700			47.0		
			2,750			45.9		
			2,800			44.9		
			2,850			44.0		
			2,900			43.1		
			2,950			42.2		
			3,000			41.3		

TYPE	OVERALL HEIGHT BH (mm)	FRAME CENTRE RM (mm)			
		980	1,100	1,200	1,300
Crossmember set Front/rear for ZDM 20	220	09.801.22.98.0	09.801.22.11.0	09.801.22.12.0	09.801.22.13.0
	270	09.801.27.98.0	09.801.27.11.0	09.801.27.12.0	09.801.27.13.0
	320	09.801.32.98.0	09.801.32.11.0	09.801.32.12.0	09.801.32.13.0
	370	09.801.37.98.0	09.801.37.11.0	09.801.37.12.0	09.801.37.13.0
	420	09.801.42.98.0	09.801.42.11.0	09.801.42.12.0	09.801.42.13.0
	470	09.801.47.98.0	09.801.47.11.0	09.801.47.12.0	09.801.47.13.0
	520	09.801.52.98.0	09.801.52.11.0	09.801.52.12.0	09.801.52.13.0
	570	09.801.57.98.0	09.801.57.11.0	09.801.57.12.0	09.801.57.13.0

Crossmember set can be welded on on request.



If the brackets (front and rear) are delivered unassembled, they must be bolted on in accordance with the assembly and operating instructions (FL = in accordance with type plate). Characteristic values for rigid drawbar and brackets in accordance with drawbar type plate. The drawbar is only to be used with the brackets from Ringfeder.

Ringfeder rigid drawbars up to 18,000 kg

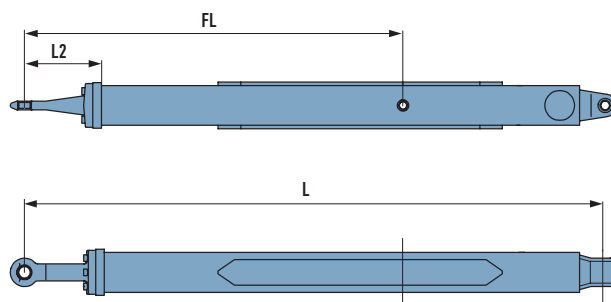
ZEQ series, height adjustable

(Individual certificate)

In addition to the standard dimensions shown in the tables below, the following options are also available on request:

- ▶ Special versions with a higher V value
- ▶ Use of other towing eye types
- ▶ Other dimensions

Please see the data sheet on our website for further information. Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.



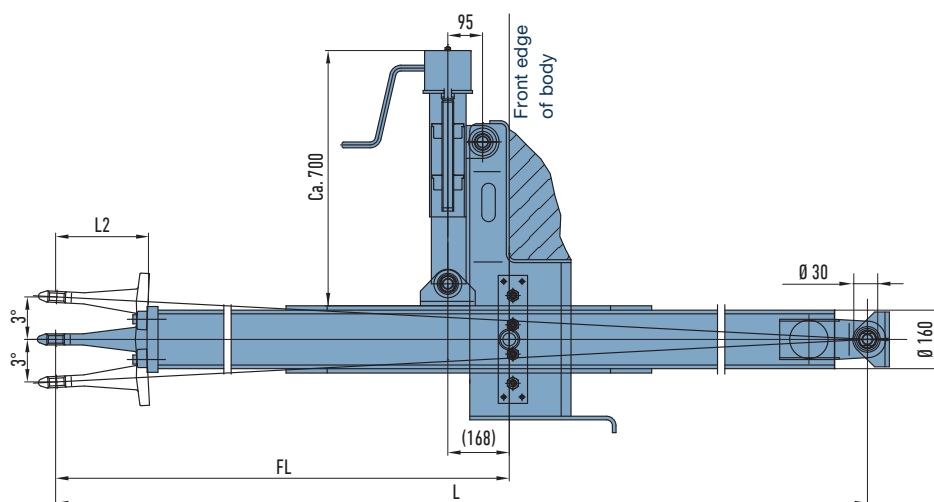
TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAW- BAR LENGTH FL (mm)	MAX. V VALUE (kN)	RINGFEDER NO.	WEIGHT (kg)
ZEQ 10-1 Dc = 70 kN 10 t Drawbar load 1,000 kg Tube 140 x 140 With individual certificate	Ø 40 ZE 13/1 DIN 74054- 40D L2 = 250	2,990	1,700	30.1	51.32.10.0100	150
		3,290	1,800	28.5	51.32.10.0101	162
			1,900	26.5		
		3,590	2,000	24.1	51.32.10.0102	174
			2,100	22.3		
			2,200	21.5		
		3,890	2,300	19.6	51.32.10.0103	186
			2,400	18.4		
			2,500	17.4		
ZEQ 13.5 Dc = 90 kN 13.5 t Drawbar load 1,000 kg Tube 160 x 160 With individual certificate	Ø 40 ZE 13/1 DIN 74054- 40D L2 = 250	2,990	1,700	46.7	51.32.14.0100	160
		3,290	1,800	43.6	51.32.14.0101	175
			1,900	40.8		
		3,590	2,000	38.3	51.32.14.0102	190
			2,100	36.0		
			2,200	33.9		
		3,890	2,300	32.0	51.32.14.0103	205
			2,400	30.2		
			2,500	28.6		
ZEQ 18 Dc = 110 kN 18 t Drawbar load 1,000 kg Tube 250 x 150 With individual certificate	Ø 50 D50-C DIN 74053- 50D L2 = 250	3,050	1,700	60.5	51.32.18.0105	270
		3,350	1,800	60.5	51.32.18.0108	290
			1,900	60.5		
		3,650	2,000	60.5	51.32.18.xxxx	310
			2,100	57.6		
			2,200	54.6		
		3,950	2,300	51.8	51.32.18.xxxx	330
			2,400	49.2		
			2,500	46.9		
			2,600	44.7		

For use of other towing eye types, see page 28.

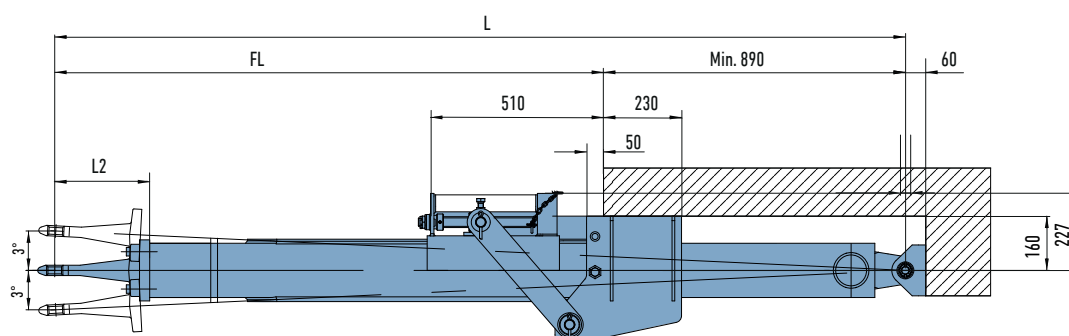
Ringfeder height adjustment device for rigid drawbars of the ZEQ 13.5 series

(Individual certificate)

ZEQ 13.5 with height adjustment device – vertical



ZEQ 13.5 with height adjustment device – horizontal



TYPE	DESCRIPTION	QUANTITY per vehicle	RINGFEDER NO.	WEIGHT (kg)
Height adjustment device (vertical) for rigid drawbar type ZEQ 13.5-1 (Fig. 1) with individual certificate	For ZEQ 13.5, box including crank spindle, front spring shoe and spring bolt. Info: Rear spring shoe and bolt must be ordered separately	1	05.031.00.18.0	60
Rigid drawbar type ZEQ 13.5-1-HVL (Fig. 2) including height adjustment device (horizontal) with individual certificate	ZEQ 13.5 with box including horizontal spindle, spring shoe and spring bolt L = 2,990, FL = 1,600 – 2,100	1	51.32.15.0101	221
Spring shoe	For bearing eye 100/30 mm	1	02.1004.22.00	3.6
Spring bolt E 11	M 24 x 1.5, with castle nut, washer, split pin and grease nipple	1	09.801.98.18.0	1

Ringfeder rigid drawbars up to 24,000 kg ZFL20 series, length adjustable

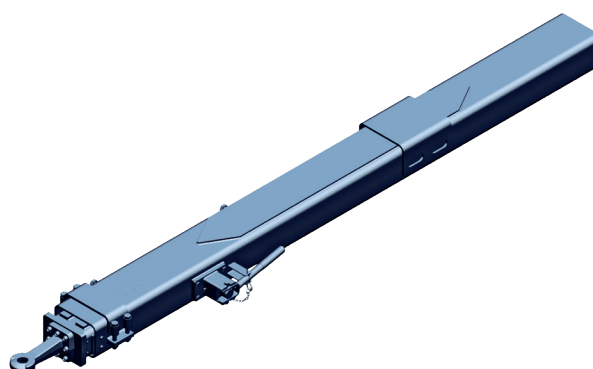
(ECE approval)

In addition to the standard dimensions shown in the tables below, the following options are also available on request:

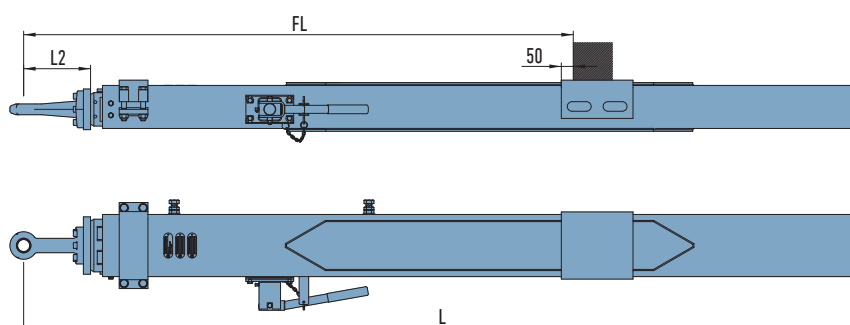
- ▶ Adjustment up to 6 x 100/8 x 100 mm
- ▶ Special adjustment for through-loading operation
- ▶ Special versions with higher V value
- ▶ Use of other towing eye types
- ▶ Other dimensions

As standard, the length-adjustable Ringfeder ZFL20 rigid drawbar features handle adjustment of 4 x 100 mm. Pneumatic adjustment is available on request (can also be retrofitted). The stated V values are for the adjustment 0 mm (basic state) and 4 x 100 mm.

Please note that the permissible Dc and V values



of the rigid draw-bar must be tailored to the desired towing eye and trailer coupling.

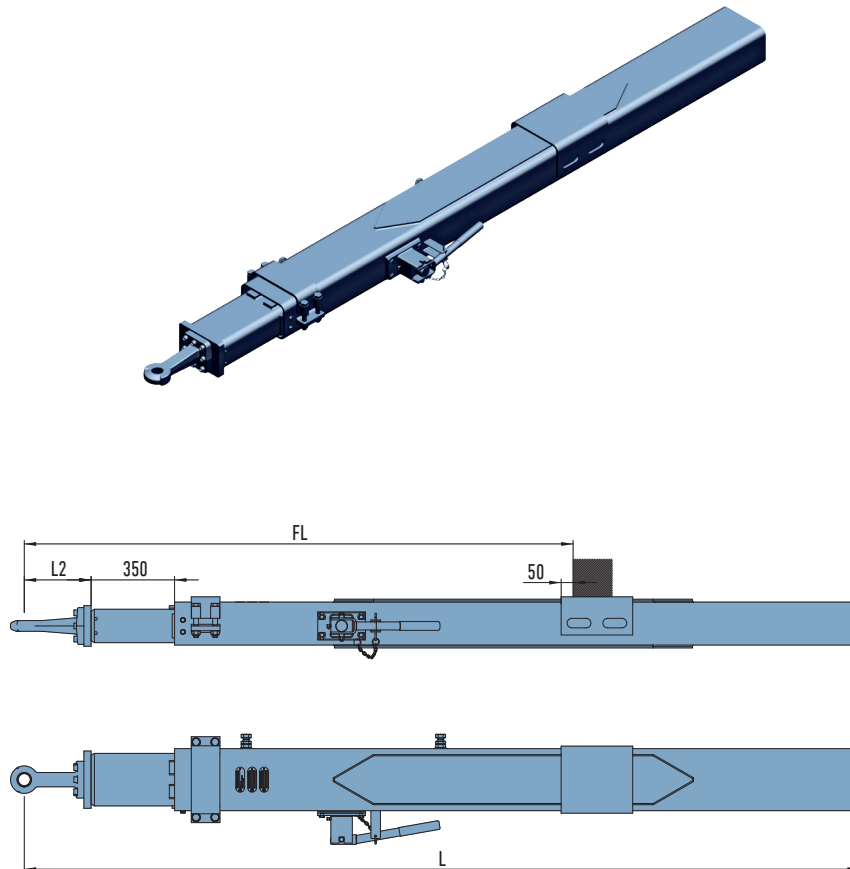


TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (MM)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE FOR ADJUSTMENT 0/4 X 100 (kN) DRAWBAR LOAD (kg) 1,000 2,000		RINGFEDER NO.	WEIGHT (kg)
ZFL20-1A Drawbar load 1,000 kg	Ø 50 D50-C DIN 74053-50D1 L2=280	2,900	1,700	90/76	75/66	51.21.21.xxxx	350
ZFL20-3A Drawbar load 2,000 kg		3,200	1,800	90/76	75/66		375
Dc= 130 kN			1,900	90/73	75/63		
24 t		3,500	2,000	86/70	75/60		405
Tube 260 x 180 with weld-in U-bolt			2,100	81/66	71/57		
ECE no.		3,800	2,200	77/63	67/54		430
E1*55R01/07*30 23			2,300	73/61	63/51		
			2,400	70/58	60/48		
			2,500	66/56	57/46		
			2,600	63/54	54/44		

Alternative versions available on request. For towing eyes, see page 28.
Additional weld-in U-bolt 03.114.00.04.0
Supplementary installation kit for pneumatic locking 09.801.95.37.0
Supplementary installation kit for manual locking 09.801.90.71.0

ZFL20 series, length-adjustable, inner tube extended 350 mm in basic position

(ECE approval)



TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE FOR ADJUST- MENT 0/4 X 100 (kN) DRAWBAR LOAD (kg)		RINGFEDER NO.	WEIGHT (kg)
ZFL20-1A/A Drawbar load 1,000 kg ZFL20-3A/A drawbar load 2,000 kg Inner tube extended 350 mm in basic position Dc = 130 kN 24 t Tube 260x180 with weld-in U-bolt ECE no. E1*55R01/07*30 23	Ø 50 D50-C DIN 74053- 50D1 L2=280	2,900	1,700	86/55	75/45	51.21.21. xxxx	335
		3,200	1,800	80/55	70/45		360
			1,900	80/55	70/45		
		3,500	2,000	80/55	70/45		390
			2,100	68/52	58/42		
		3,800	2,200	68/52	58/42		415
			2,300	68/52	58/42		
			2,400	59/48	49/38		
			2,500	59/48	49/38		
			2,600	59/48	49/38		

Alternative versions available on request. For towing eyes, see page 28.
Additional weld-in U-bolt 03.114.00.04.0
Supplementary installation kit for pneumatic locking 09.801.95.37.0
Supplementary installation kit for manual locking 09.801.90.71.0

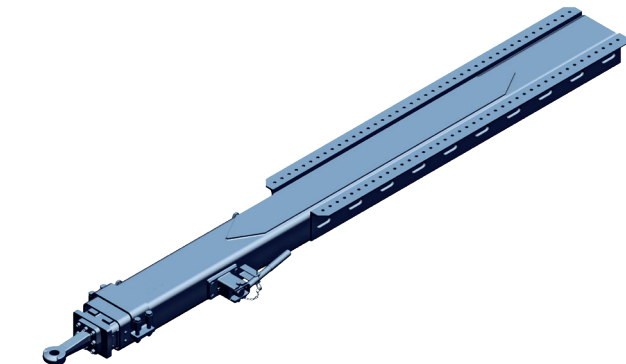
Ringfeder rigid drawbars up to 24,000 kg ZFL20 series, length-adjustable, bolted on with adjusting rail

(ECE approval)

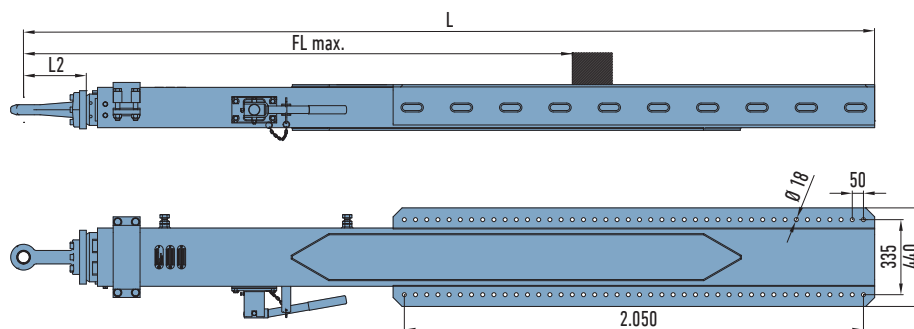
In addition to the standard dimensions shown in the tables below, the following options are also available on request:

- ▶ Adjustment up to 6 x 100/8 x 100 mm
- ▶ Special adjustment for through-loading operation
- ▶ Special versions with higher V value
- ▶ Use of other towing eye types
- ▶ Other dimensions

As standard, the length-adjustable Ringfeder ZFL20 rigid drawbar features handle adjustment of 4 x 100 mm. Pneumatic adjustment is available on request (can also be retrofitted). The stated V values are for the adjustment 0 mm (basic state) and 4 x 100 mm.



Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.

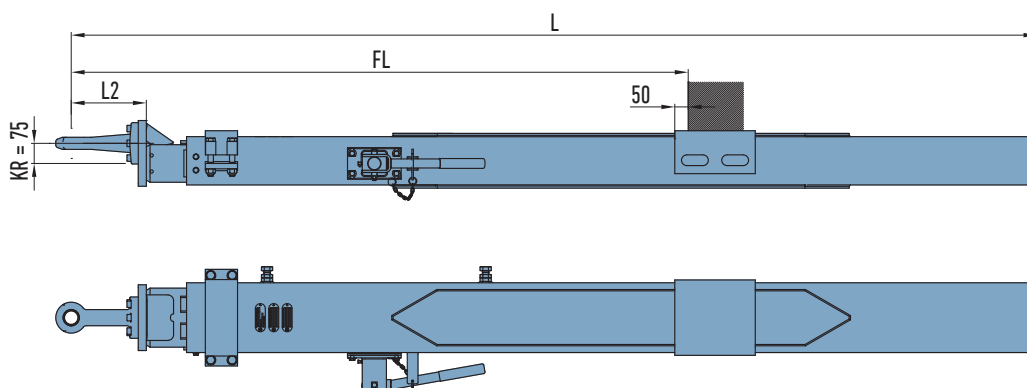
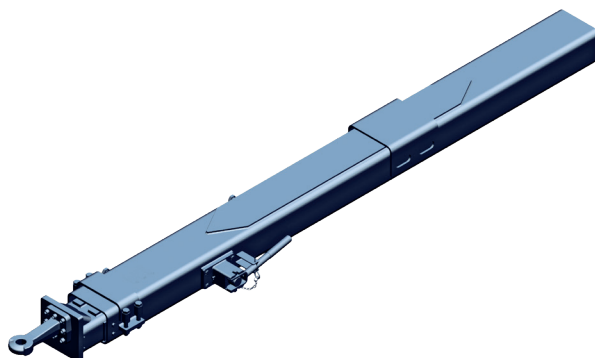


TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (MM)	MAX. FREE DRAWBAR LENGTH FL (mm)	LENGTH OF ADJUSTING RAIL LV (mm)	MAX. V VALUE FOR ADJUSTMENT 0/4 X 100 (kN) DRAWBAR LOAD (kg) 1,000 2,000		RINGFEDER NO.	WEIGHT (kg)
ZFL20-1B Drawbar load 1,000 kg	Ø 50 D50-C DIN 74053-50D1 L2=280	3,800	1,950	Drilling pattern 2050 x 335 x 50 x Ø 18	88/71	75/61	51.21.21. xxxx	505
ZFL20-3B Drawbar load 2,000 kg			2,000		86/70	75/60		
Dc= 130 kN			2,100		81/66	71/57		
24 t			2,200		77/63	67/54		
Tube 260 x 180			2,300		73/61	63/51		
With adjusting rail		4,100	2,400		70/58	60/48		530
Minimum support width			2,500		66/56	57/46		
SW= 1,200 mm			2,600		63/54	54/44		
EC no.:			2,700		61/52	51/42		
E1*55R01/07*3023			2750		59/51	49/41		

Alternative versions available on request. For towing eyes, see page 28.
Supplementary installation kit for pneumatic locking 09.801.95.37.0
Supplementary installation kit for manual locking 09.801.90.71.0

ZFL20 series, length adjustable, with height offset of the towing eye

(ECE approval)



TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	TOWING EYE OFFSET VS (MM)	MAX. V VALUE FOR ADJUSTMENT 0/4 X 100 (kN)	RINGFEDER NO.	WEIGHT (kg)
ZFL20-2A Drawbar load 1,000 kg With height offset of towing eye Dc= 130 kN 24t Tube 260x 180 with weld-in U-bolt ECE no.: E1*55R01/07*30 23	Ø 50 D50-C DIN 74053- 50D1 L2=280	3,000	1,700	75 Standard	90/58	51.21.21. xxxx	355
		3,300	1,800		87/58		380
			1,900		82/58		
		3,600	2,000		77/58		410
			2,100		73/58		
			2,200		69/57		
		3,900	2,300		66/55		435
			2,400		63/52		
			2,500		60/50		
			2,600		57/48		

Alternative versions available on request. For towing eye, see page 28.

Additional weld-in U-bolt 03.114.00.04.0

Supplementary installation kit for pneumatic locking 09.801.95.37.0

Supplementary installation kit for manual locking 09.801.90.71.0

Ringfeder modular rigid drawbars up to 24,000 kg

ZFL20 series, length adjustable with bolted crossmembers

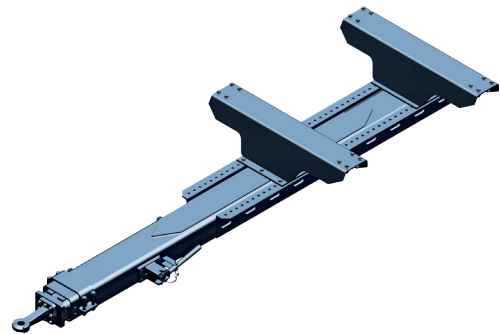
(Individual certificate)

The rigid drawbars in the ZFL20 series can also be supplied as modular systems with crossmembers that can be bolted. With a minimum support width (SW) of 1,200 mm, the crossmembers can be bolted on every 50 mm.

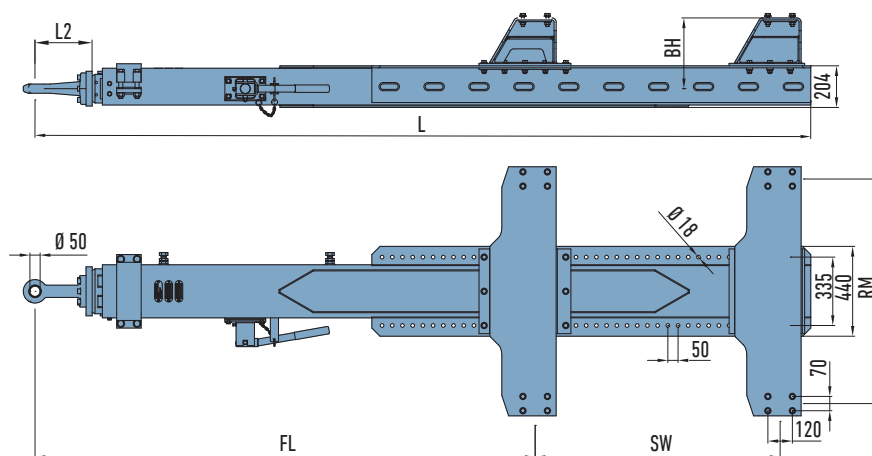
The as-delivered condition is unmounted. Pre-assembled units are also available on request.

The stated V values are for the adjustment 0 mm (basic state) and 4 x 100 mm.

Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.



Use of the crossmembers in combination with other series is available on request.



TYPE	TOW- ING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	ADJU- STING RAIL LV (mm)	FRAME CENTRE RM (mm)	OVERALL HEIGHT BH (mm)	V VALUE FOR ADJUSTMENT 0/4 X 100 (kN)	WEIGHT FOR FRAME CENTRE (RM)=1,100 BH=346 (kg)
ZFL20-1B With bolted crossmembers Drawbar load 1,000 kg Dc = 130 kN 24t Tube 260 x 180 With adjusting rail Minimum support width SW = 1,200 mm In modular design With individual certi- ficate	Ø 50 D50-C DIN 74053- 50D1 L2=280	3,800	1,950 2,000 2,100 2,200 2,300 2,400 2,500	Drilling pattern 2050 x 335 x 50 x Ø 18	980 1,100 1,200 1,300	246 296 346 395 446 496 546 596	88/71 86/70 81/66 77/63 73/61 70/58 66/56 63/54 61/52 59/51	685
		4,100	2,600 2,700 2,750					710

Alternative versions available on request. For towing eyes, see page 28.
Supplementary installation kit for pneumatic locking 09.801.95.37.0
Supplementary installation kit for manual locking 09.801.90.71.0

Ringfeder rigid drawbars up to 13,500 kg

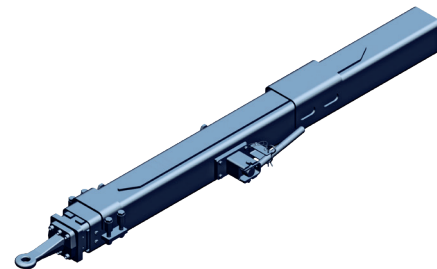
ZFL13.5 series, length adjustable

(Individual certificate)

With the ZFL13.5, Ringfeder also offers a length-adjustable drawbar for vehicles up to 13.5 t permissible gross weight. In addition to the standard dimensions shown in the tables below, the following options are also available on request:

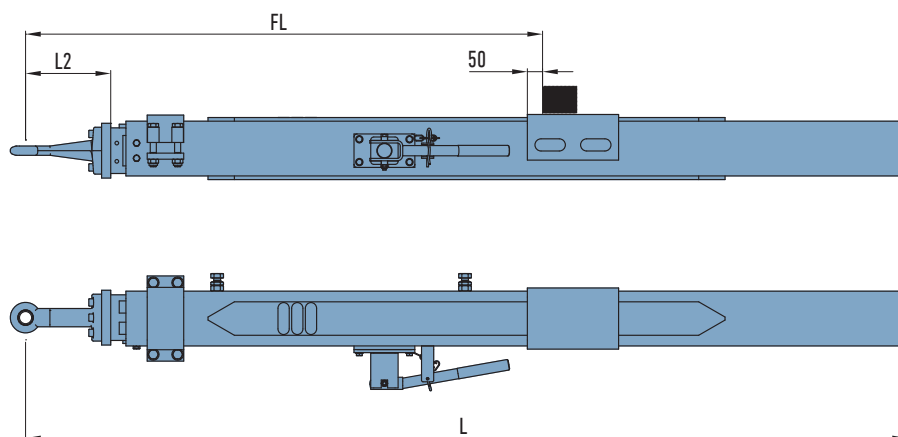
- ▶ Adjustment up to 6 x 100/8 x 100 mm
- ▶ Special adjustments
- ▶ Use of other towing eye types
- ▶ Other dimensions

As standard, the length-adjustable Ringfeder ZFL13.5 rigid drawbar features handle adjustment of 4 x 100 mm. Pneumatic adjustment is available on request (can also be retrofitted).



The stated V values are for the adjustment 0 mm (basic state) and 4 x 100 mm.

Please note that the permissible Dc and V values of the rigid drawbar must be tailored to the desired towing eye and trailer coupling.

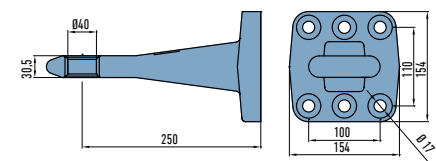


TYPE	TOWING EYE (DIN) L2 (mm)	TOTAL LENGTH L (mm)	MAX. FREE DRAWBAR LENGTH FL (mm)	MAX. V VALUE FOR ADJUSTMENT 0/4 X 100 (kN)	RINGFEDER NO.	WEIGHT (kg)
ZFL13.5-1A Drawbar load 1,000 kg Dc=90 kN 13.5 t Tube 180x180 With weld-on U-bolt With individual certificate	Ø 40 ZE 13/1 DIN 74054- 40D L2 = 280	2,900	1,700	39/31	51.21.13.xxxx	265
		3,200	1,800	39/31		280
			1,900	39/31		
			2,000	39/31		
		3,500	2,100	39/31		295
			2,200	39/31		
		3,800	2,300	37/30		310
			2,400	35/28		
			2,500	33/27		
			2,600	31/26		

Alternative versions available on request. For towing eyes, see page 28.
 Additional weld-on U-bolt 03.114.76.07.0
 Supplementary installation kit for pneumatic locking 05.801.95.37.0
 Supplementary installation kit for manual locking 09.801.90.71.0

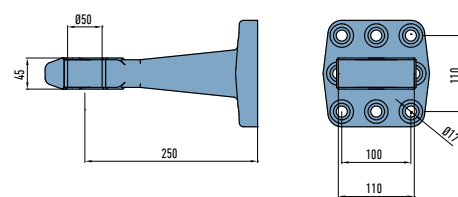
RINGFEDER RIGID DRAWBARS – GENERAL INFORMATION TOWING EYES AND BOLT-ON FLANGES

With its range of rigid drawbars, Ringfeder offers a comprehensive modular system that enables individual combinations. Below is an overview of the Ringfeder standard product range.



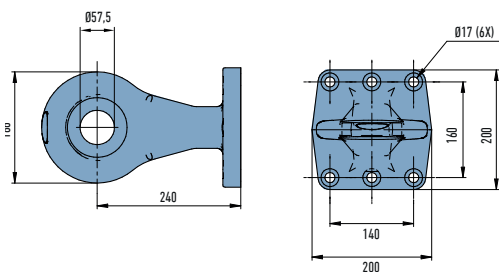
Towing eye DIN 40 (ZE/13)
ECE no. E1-55R-012577
51.30.14.0002

Bolt (6 units)
02.5015.64.12



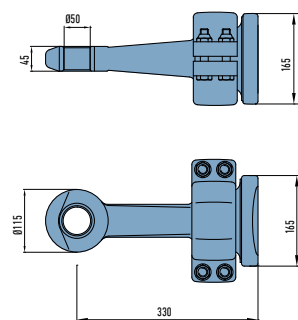
Towing eye DIN 50
(D50-D1)
02.4904.27.00

Bolt (8 units)
02.5015.64.12

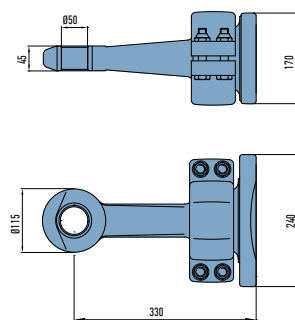


Towing eye
Type VBG-15
ECE no. E4-55R-010084
02.4904.25.00

Bolt (6 units)
02.5015.66.23



Towing eye DIN 50 (480)
02.4904.17.00

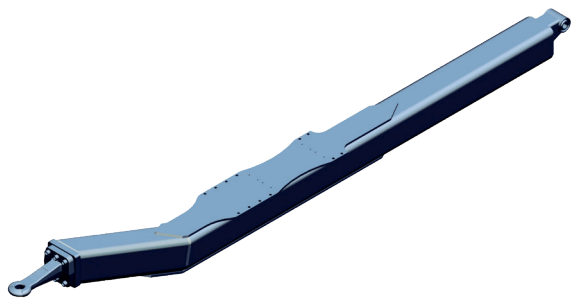


Towing eye DIN 50 (480/1)
02.4904.22.00

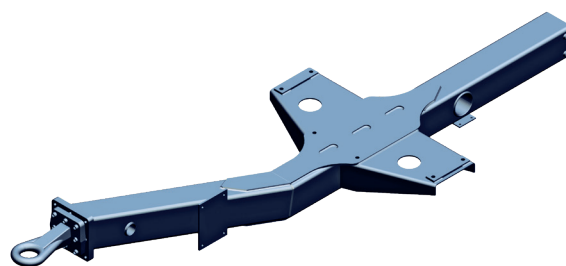
Ringfeder rigid drawbars – general information

Special versions

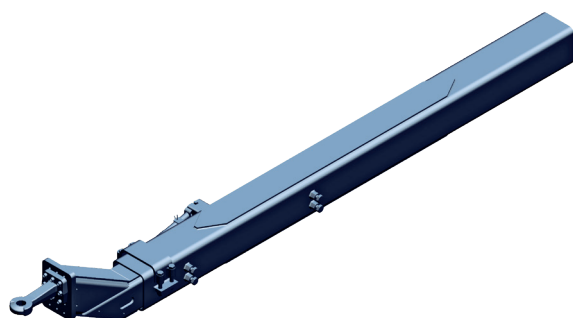
In addition to the modular system, Ringfeder also offers a range of individual solutions and can therefore also fulfil specific customer requirements. Below is a selection from the special design range.



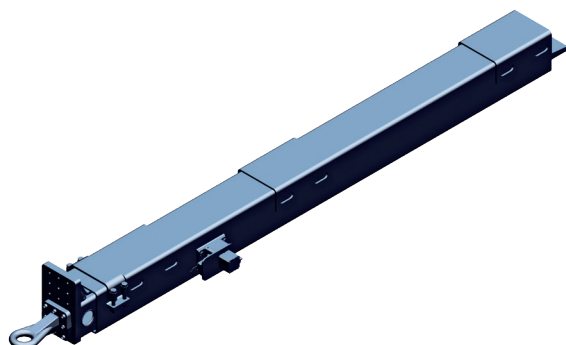
ZDK series



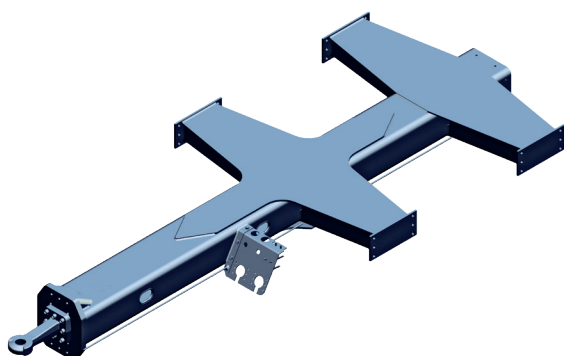
ZDK series with crossmember



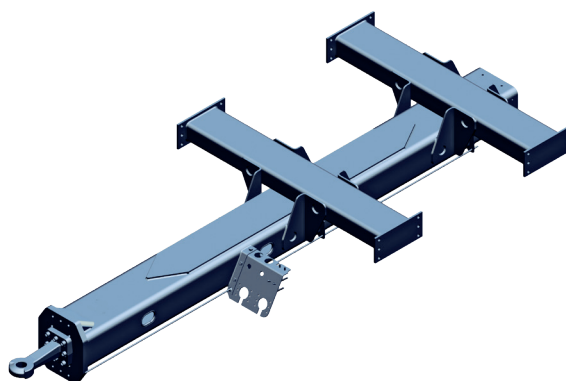
ZFLK series



ZFL series



ZD series with crossmembers



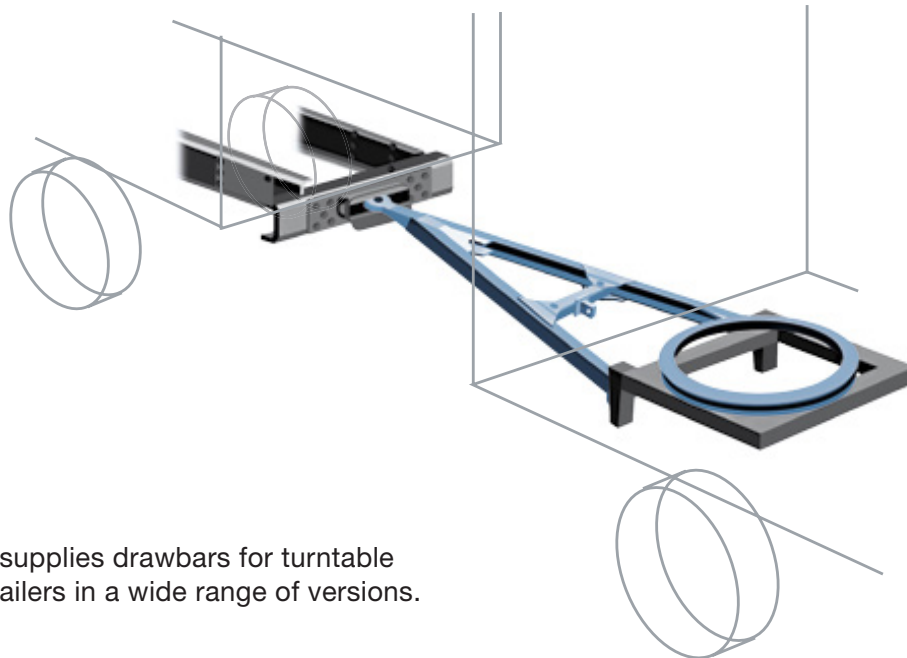
ZD series with crossmembers

The perfect combination for turntable drawbar trailers.

Drawbars from Ringfeder.

Ringfeder drawbars for turntable drawbar trailers with a permissible gross weight of 12 to 48 t form the perfect link between tractor units and trailers with turntable steering. Ringfeder supplies all the versions that are

required in practice, such as straight or angled towing eyes, or with length adjustment and/or cranked. In addition to this, all Ringfeder standard drawbars have ECE approval and special versions are type approved.



Ringfeder supplies drawbars for turntable drawbar trailers in a wide range of versions.



RINGFEDER DRAWBARS – FEATURES AND BENEFITS

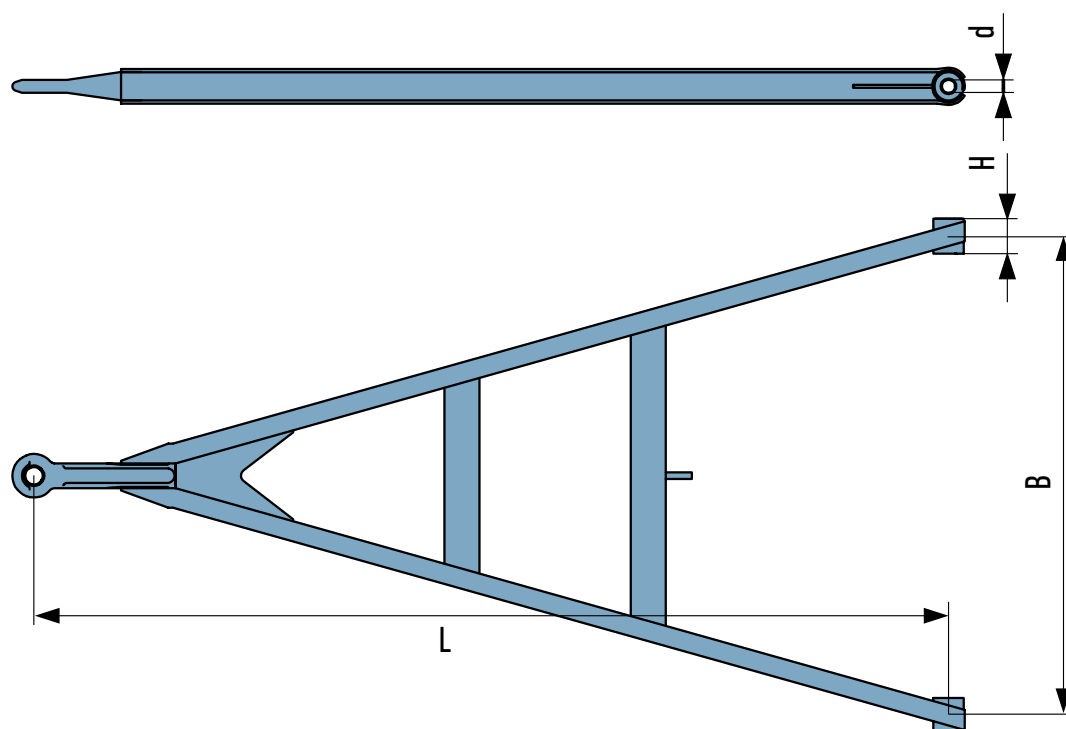
- For turntable drawbar trailers with a permissible gross weight of 12 to 48 t
- Common dimensions are available immediately
- With ECE approval or individual certificate
- Treated with zinc phosphate, with cathaphoretic dip-coating (KTL_{Zn})
- High level of corrosion resistance due to galvanized towing bars on length-adjustable drawbars
- Various versions available:
 - With angled towing eye
 - With fixed centre tube
 - Straight or cranked
 - Length adjustable
 - With swivelling eye
 - With semi-automatic or pneumatic length adjustment
 - With low-maintenance silent bushes

RINGFEDER DRAWBARS UP TO 48,000 KG

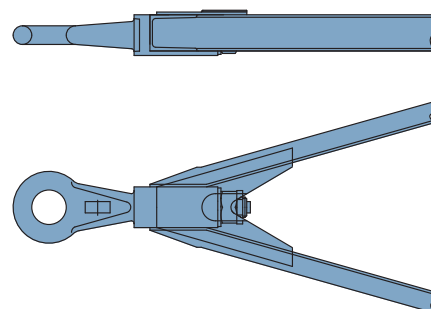
TBZ SERIES MADE OF U NORMAL PROFILE

(ECE approval)

The TBZ 27 and 32 series have towing eyes with Ø 40 mm (DIN 74054-40A) as standard. All drawbars are also available with towing eyes Ø 50 mm (DIN 74053-50A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE OF TOWING EYE	Ø BUSH (mm)	TBZ 27	TBZ 32	TBZ 48
DIN 74054-40A/40B	40	•	•	
DIN 74053-50A/50B	50	•	•	•
VBG 15-0173/16-0895	57.5/50	•	•	•
NATO	76	•	•	•
Switzerland	40	•	•	
BNA (screw-in)	68	•	•	•
T56 heavy-duty towing eye	40			•



TBZ 27 drawbar also available with screw-in eye on request.

TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
TBZ 27 D = 125 kN 27 t Max. front-axle load 12 t ECE no. E1*55R01/07*30 11 Profile U 80 Option of screw-in towing eye	1,100	860 900 980 1,000 1,100 1,200 1,300 1,400	100/30 ¹⁾ Special dimensions 70/26 80/28 80/30	1	31.0
	1,200				33.0
	1,300				35.0
	1,400				37.0
	1,500				39.0
	1,600				41.0
	1,700				42.5
	1,800			2	44.0
	1,900				45.5
	2,000				47.0
	2,100				51.0
	2,200				52.5
	2,300				54.0
	2,400				56.0
	2,500				58.0
	2,600				60.0
	2,700				61.5
	2,800				63.0
	2,900				64.5
	3,000				66.0
TBZ 32 D = 125 kN 32 t Max. front-axle load 16 t ECE no. E1*55R01/07*30 10 Profile U 100	1,400	330 860 900 980 1,000 1,100 1,200 1,300 1,400	100/30 ¹⁾ Special dimensions 70/26 80/28 80/30	1	41.0
	1,500				43.0
	1,600				45.0
	1,700				47.0
	1,800				49.0
	1,900				51.0
	2,000				53.0
	2,100			2	56.0
	2,200				60.0
	2,300				62.0
	2,400				64.0
	2,500				66.0
	2,600				68.0
	2,700				70.0
	2,800				72.0
	2,900				74.0
	3,000				76.0
TBZ 48 ²⁾ D = 190 KN 48 T Max. front-axle load 24 t ECE NO. E1*55R01/07*30 09 Profile U 120	1,500	860 900 980 1,000 1,100 1,200 1,300	100/30 ¹⁾ Special dimensions 102/32 ³⁾ 100/35 100/40 ⁴⁾	1	62.0
	1,600				64.5
	1,700				67.0
	1,800				69.5
	1,900				72.0
	2,000				77.0
	2,100				79.0
	2,200			2	82.0
	2,300				85.0
	2,400				87.5
	2,500				90.0
	2,600				93.0
	2,700				98.0
	2,800				100.5
	2,900			3	103.0
	3,000				105.5
	3,100				108.0
	3,200				111.0
	3,300				114.0
	3,400				116.0
	3,500				118.0

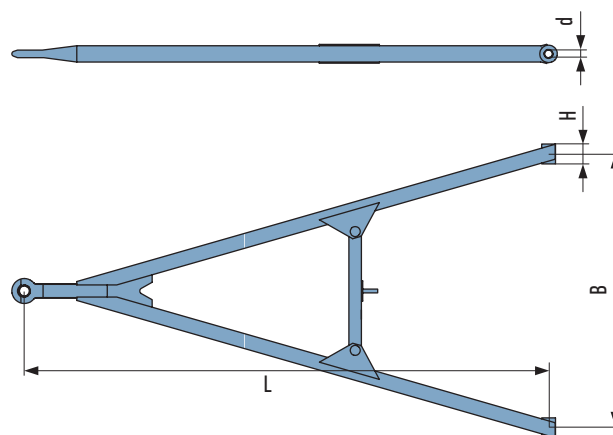
¹⁾ Also available on request with low-maintenance silent bush (see page 50). ²⁾ Available with towing eye type 56 (heavy-duty towing eye) and type VBG as standard

³⁾ With Kronrohr block ⁴⁾ Brass bush

Ringfeder drawbars up to 27,000 kg SL series made from lightweight U profile

(ECE approval)

With towing eye Ø 40 mm (DIN 74054-40 A) as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



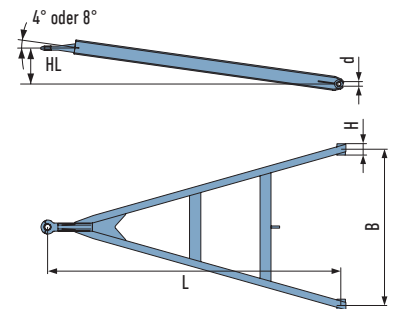
TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
SL 12 D = 82.4 kN 12 t Max. front-axle load 6 t ECE no. E1*55R01/07*30 13 Profile 65/57.5/4	1,400			1	27.0
	1,500				28.0
	1,600	800	100/30 ¹⁾		29.0
	1,700	860	Special dimen- sions 70/26 80/28 80/30		30.0
	1,800	900			31.0
	1,900	980			32.0
	2,000	1,000			33.0
	2,100	1,100			34.0
	2,200	1,200			35.0
2,300	1,300				
SL 27 D = 125 kN 27 t Max. front-axle load 12 t ECE no. E1*55R01/07*30 07 Profile 80/70/6	1,400			1	37.0
	1,500				39.0
	1,600				41.0
	1,700				42.5
	1,800				44.0
	1,900	800	100/30 ¹⁾		45.5
	2,000	860	Special dimen- sions 70/26 80/28 80/30		47.0
	2,100	900			50.0
	2,200	980			52.0
	2,300	1,000			54.0
	2,400	1,100		56.0	
	2,500	1,200		58.0	
	2,600	1,300		62.0	
	2,700		2	64.0	
	2,800			66.0	
	2,900			68.0	

¹⁾ Also available on request with low-maintenance silent bush (see page 50).

Ringfeder drawbars up to 32,000 kg ZGS series with angled towing eye

(ECE approval)

With towing eye Ø 40 mm (DIN 74054-40 A) as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	CROSS STRUTS Quantity	HEIGHT OFF- SET HL approx. mm (4°/8°)		WEIGHT Approx. kg
ZGS 27 D = 125 kN 27 t Max. front-axle load 12 t ECE no. E1*55R01/07*30 12 Profile UNP 80	1,400	600	100/30 ¹⁾ Special dimen- sions 70/26 80/28 80/30	1	84	168	37.0
	1,500				91	182	39.0
	1,600				98	196	41.0
	1,700				105	210	42.5
	1,800				112	224	44.0
	1,900			2	119	238	48.0
	2,000				126	252	49.5
	2,100				133	266	51.0
	2,200				140	280	52.5
	2,300				146	294	54.0
ZGS 32 D = 125 kN 32 t Max. front-axle load 16 t ECE no. E1*55R01/07*30 08 Profile UNP 100	2,400	600	100/30 ¹⁾ Special dimen- sions 70/26 80/28 80/30	1	153	308	56.0
	2,500				160	323	58.0
	2,600				167	337	60.0
	1,400			2	84	168	41.0
	1,500				91	182	43.0
	1,600				98	196	45.0
	1,700				105	210	47.0
	1,800				112	224	49.0
	1,900				119	238	51.0
	2,000				126	252	53.0
	2,100				133	266	56.0
	2,200				140	280	60.0
	2,300				146	294	62.0
	2,400				153	308	64.0
	2,500				160	323	66.0
ZGS 48 ²⁾ D = 190 kN 48 t Max. front-axle load 20 t Individual certificate Profile UNP 120	2,600	860	1100/30 ¹⁾ Special dimen- sions 102/32 ³⁾ 100/35 100/40 ⁴⁾	1	167	337	68.0
	2,700				174	351	70.0
	2,800				181	365	72.0
	2,900				188	379	74.0
	3,000				195	393	76.0
	1,400			2	84	168	59.5
	1,500				91	182	62.0
	1,600				98	196	64.5
	1,700				105	210	67.0
	1,800				112	224	69.5
	1,900				119	238	74.5
	2,000				126	252	77.0
	2,100				133	266	79.0
	2,200				140	280	82.0
	2,300				146	294	85.0
	2,400				153	308	87.5
	2,500				160	323	90.0
	2,600				167	337	93.0
	2,700				174	351	96.0

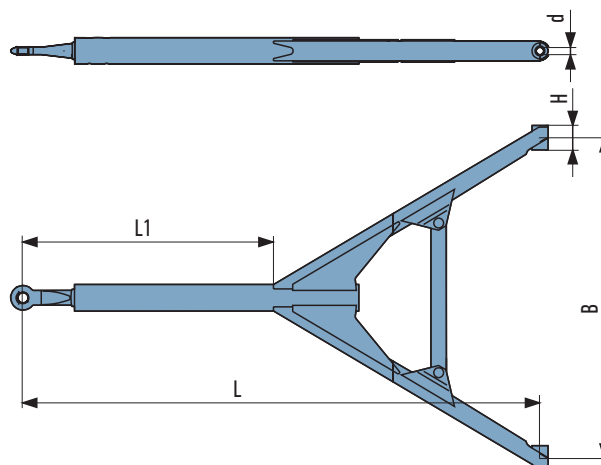
¹⁾ Also available on request with low-maintenance silent bush (see page 50). ²⁾ Available with towing eye type 56 (heavy-duty towing eye)
³⁾ With Kronrohr block ⁴⁾ Brass bush

Ringfeder drawbars up to 26,000 kg

PZM series with fixed centre tube

(ECE approval)

With towing eye Ø 40 mm (DIN 74054-40 A) as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L1 (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZM 26 D = 125 kN 26t Max. front-axle load 10 t ECE no. E1*55R01/07*30 15 Profile U 80/70/6 Towing bar Ø 108	1,600	860 900 980 1,000 1,100 1,200 1,300	100/30 ¹⁾ Special dimensions 80/28 80/30	740	1	70.0
	1,700			840		75.0
	1,800					77.0
	1,900			940		79.0
	2,000					81.0
	2,100					82.5
	2,200			1,040		84.0
	2,300					87.0
	2,400			1,140		89.0
	2,500					91.0
	2,600					94.0
	2,700			1,240	2	95.5
	2,800					97.0
	2,900					101.0
	3,000					103.0
	3,100					105.0
	3,200					107.0
	3,300					109.0
	3,400					112.0

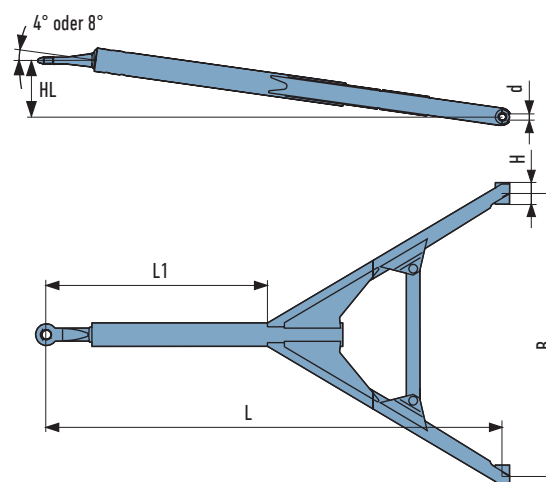
2) Also available on request with low-maintenance silent bush (see page 50).

Ringfeder drawbars up to 26,000 kg

PZMS series with fixed centre tube and angled towing eye

(Individual certificate)

With towing eye Ø 40 mm (DIN 74054-40 A) as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L1 (mm)	CROSS STRUTS Quantity	HEIGHT OFFSET HL APPROX. MM (4°/8°)		WEIGHT Approx. kg
PZMS 26 D = 125 kN 26 t Max. front-axle load 10 t ECE no. E1*55R01/07*30 15 Profile U 80/70/6 Towing bar Ø 108	1,600	860	100/30 ²⁾ Special dimensions 80/28 80/30	740	1	97	195	70.0
	1,700			840		104	209	75.0
	1,800					111	223	77.0
	1,900					118	237	79.0
	2,000					125	251	81.0
	2,100			940		132	265	82.5
	2,200					139	280	84.0
	2,300					146	294	87.0
	2,400					153	308	89.0
	2,500			1,040		160	322	91.0
	2,600					167	336	94.0
	2,700					174	350	95.5
	2,800			2		181	364	97.0
	2,900				188	378	101.0	
	3,000				195	392	103.0	
	3,100				202	406	105.0	
	3,200				209	420	107.0	
	3,300				218	434	109.0	
	3,400				223	448	112.0	

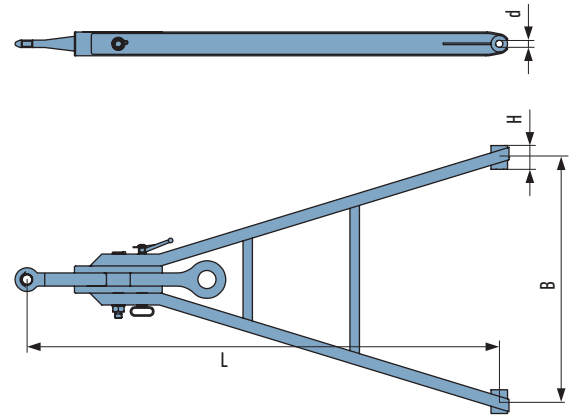
2) Also available on request with low-maintenance silent bush (see page 50).

Ringfeder drawbars up to 40,000 kg

PZS series with swivelling eye

(Individual certificate)

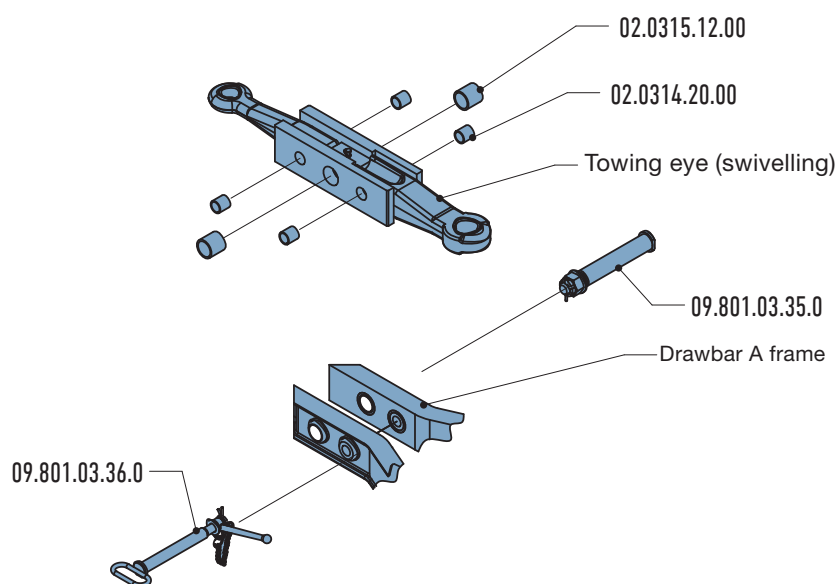
Available as standard with swivelling towing eye Ø 40 mm (DIN 74054-40 A) and towing eye Ø 50 mm (DIN 74053-50 A). In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZS 26 D = 125 kN ¹⁾ 26 t Max. front-axle load 10 t Individual certificate Profile UNP 80	1,400	900	100/30 ²⁾	1	71
	1,500				73
	1,600				75
	1,700				77
	1,800				79
	1,900				81
	2,000			2	84
	2,100				86
	2,200				88
	2,300				90
	2,400				92
	2,500				94
	2,600				96
	2,700				98
PZS 32 D = 125 kN ¹⁾ 32 t Max. front-axle load 12 t Individual certificate Profile UNP 100	1,400	900	100/30 ²⁾	1	77
	1,500				79
	1,600				81
	1,700				83
	1,800				85
	1,900				87
	2,000			2	90
	2,100				92
	2,200				94
	2,300				96
	2,400				98
	2,500				100
	2,600				102
	2,700				104

¹⁾ The value depends on the selected towing eye combination (e.g. FBS max. 95 kN; NATO max. 120 kN).

²⁾ Also available on request with low-maintenance silent bush (see page 50).



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZS 40 ³⁾ D=175 kN ⁴⁾ 40 t Max. front-axle load 2x 10 t Individual certificate Profile UNP 120	1,600	900 980 1,000 1,100 1,200 1,300	100/30 ⁵⁾ Special dimensions available on request	1	90
	1,700				93
	1,800				95
	1,900				98
	2,000			2	102
	2,100				105
	2,200				107
	2,300				110
	2,400				112
	2,500				115
	2,600				117
	2,700				120

³⁾ Available as standard with swivelling towing eye DIN 40 and type 56 (heavy-duty towing eye). ⁴⁾ The value depends on the selected towing eye combination (e.g. Ø 40 max. 125 kN; FBS max. 95 kN). ⁵⁾ Also available on request with low-maintenance silent bush (see page 60).

SPARE PARTS FOR PZS AND PZSG	QUANTITY	RINGFEDER NO.
Silent bush 100/30	2	02.0316.06.00
Plastic bush 100/30	4	02.0315.22.00
Bolt 40 with castle nut, washer and split pin (retaining bolt)	1	09.801.03.35.0
Bolt 26 with locking handle, spring plug and chain (lock bolt)	1	09.801.03.36.0
Bush for lock bolt	4	02.0314.20.00
Bush for retaining bolt	2	02.0315.12.00
Towing eye 40/towing eye 50 swivelling	1	05.398.02.49.0
Towing eye 40/towing eye type 56 swivelling	1	05.398.02.28.0
Towing eye 40/FBS towing eye swivelling	1	05.398.40.14.0
Towing eye 40/NATO towing eye, swivelling	1	05.398.33.13.0
Towing eye 50/NATO towing eye, swivelling	1	05.398.02.50.0
Towing eye 40/towing eye 57.5 VBG15, swivelling	1	05.398.31.28.0

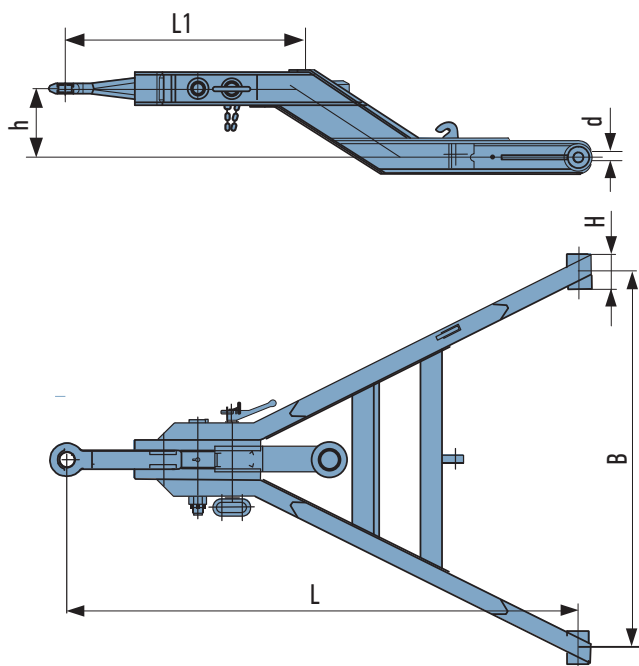
For towing eye types, see page 28

Ringfeder drawbars up to 48,000 kg PZSG series with swivelling eye and cranked

(Individual certificate)

Available as standard with swivelling towing eye Ø 40 mm (DIN 74054-40A) and heavy-duty towing eye Ø 50 mm (type 56), cranked $h = 150$ mm.

In all standard versions, the bearing eyes have plastic bushes.
Other dimensions and towing eyes are available on request.
Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L1 (mm)	CROSS STRUTS Quantity	CRANKED h (mm)	WEIGHT Approx. kg
PZSG 48 D = 125/168 kN 48 t Max. front-axle load 24 t Individual certificate Profile UNP 100	1,400	860	100/30 ¹⁾	700	2	150	98
	1,500			100			
	1,600			102			
	1,700			104			
	1,800	900	Special dimen- sions available on request	800		200	106
	1,900	980					108
	2,000	1,000					110
	2,100	1,100					112
	2,200	1,200					114
	2,300	1,300					116
	2,400						118
	2,500						120
	2,600						122

¹⁾ Also available on request with low-maintenance silent bush (see page 50).

Ringfeder drawbars up to 48,000 kg

PZG series, cranked

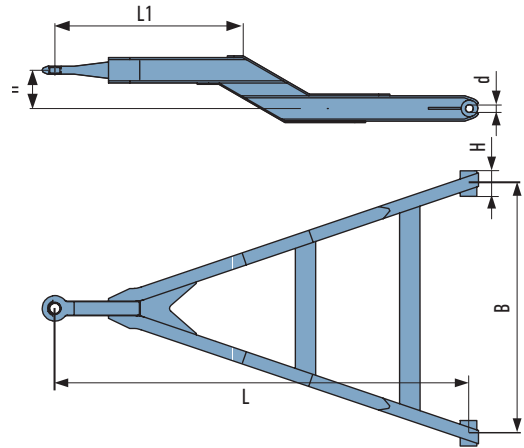
(With ECE approval or individual certificate)

PZG 18: with towing eye Ø 40 mm (DIN 74054-40 A) as standard

PZG 32: with towing eye Ø 40 mm (DIN 74054-40 A) and cranked h=150 mm as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A)

PZG 48: with heavy-duty towing eye Ø 50 mm (type 56) as standard

In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L1 (mm)	CROSS STRUTS Quantity	CRANKED H (mm)	WEIGHT Approx. kg	
PZG 18 D = 100 kN 18 t Max. front-axle load 9 t Individual certificate Profile UNP 80 (for h = 150)	1,400	860	100/30 Special dimen- sions 70/26 80/28 80/30	600	1	150 200 250	53	
	1,500			55				
	1,600			57				
	1,700			59				
	1,800			61				
	1,900			63				
	2,000			65				
	2,100			67				
	2,200			2	70			
	2,300				73			
	2,400				76			
	2,500				80			
	2,600				83			
	2,700				87			
	2,800				90			
	2,900				93			
							PZG 32 PZG 48	
PZG 32 D = 125 kN 32 t Max. front-axle load 20 t (dependent on L!) ECE no. E1*55R01/07*30 17 Profile UNP 100 PZG 48 D = 168 kN 48 t Max. front-axle load 24 t ECE no. E1*55R01/07*30 16 Profile UNP 120	1.400	860	100/30 ¹⁾ Special dimen- sions 70/26 80/28 80/30	600	1	150 200 250	58,0	66,0
	1.500			60,0			69,0	
	1.600			62,0			72,0	
	1.700			65,0			75,0	
	1.800			67,0			78,0	
	1.900			69,0			81,0	
	2.000			71,0			84,0	
	2.100			76,0			89,0	
	2.200			78,0	92,0			
	2.300			2	81,0		94,5	
	2.400				83,0		97,0	
	2.500				86,0		99,5	
	2.600				88,0		102,0	
	2.700				91,0		105,0	
	2.800				93,0		108,0	
	2.900				96,0		111,0	
3.000	–	114,0						

¹⁾ Also available on request with low-maintenance silent bush (see page 50).

Ringfeder drawbars up to 48,000 kg

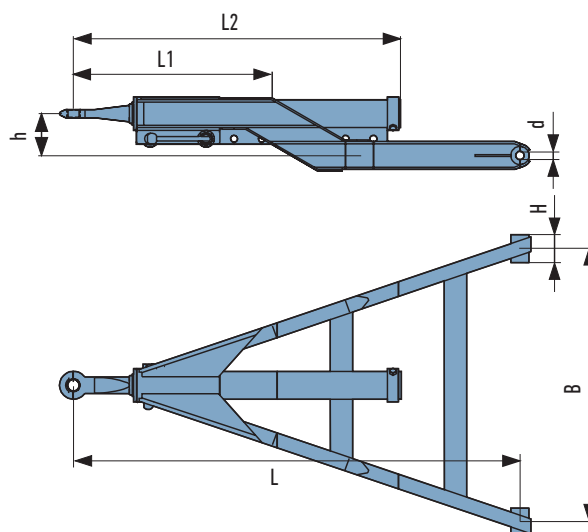
PZGL series, cranked and length-adjustable

(With ECE approval or individual certificate)

PZGL 32: with towing eye Ø 40 mm (DIN 74054-40 A), cranked $h = 150$ mm and length adjustment 12×50 mm as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A). Also available with locking nuts on request (version V)

PZGL 48: with heavy-duty towing eye Ø 50 mm (type 56) as standard

In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L ₁ (mm)	EXTENSION L ₂ (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZGL 32 D = 125 kN 32 t Max. front-axle load 10 t ECE no. E1*55R01/07*30 26 Profile UNP 100 Towing bar Ø 100	1,400	860	100/30 ¹⁾ Special dimensions available on request	600	12 x 50 (L ₂ = 1175)	1	106
	1,500			108			
	1,600			110			
	1,700			112			
	1,800			114			
	1,900			116			
	2,000			118			
	2,100			16 x 50 (L ₂ = 1375)	2	120	
	2,200					124	
	2,300					126	
	2,400					128	
	2,500					130	
	2,600					132	
PZGL 48 ²⁾ D = 160 kN 48 t Max. front-axle load 24 t Individual certificate Profile UNP 100 Towing bar Ø 102	1,400	860	100/30 ¹⁾ Special dimensions available on request	600	6 x 50 (L ₂ = 875)	1	108
	1,500			110			
	1,600			112			
	1,700			114			
	1,800			116			
	1,900			118			
	2,000			8 x 50 (L ₂ = 975)	2	120	
	2,100					126	
	2,200					130	
	2,300					132	
	2,400					134	
	2,500					136	
	2,600					138	

¹⁾ Also available on request with low-maintenance silent bush (see page 50). ²⁾ Only version 'E' possible with adjustment (with nut and bolt).

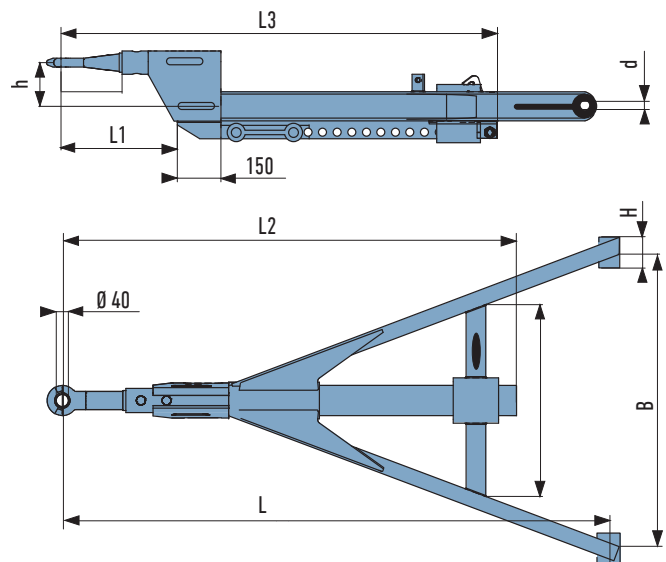
Ringfeder drawbars up to 32,000 kg PZLG 32 series, length-adjustable and cranked (towing bar)

(Individual certificate)

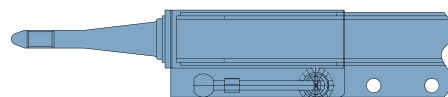
With towing eye Ø 40 mm (DIN 74054-40 A), cranked h = 150 mm and length adjustment 12 x 50 mm as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50 A).

Also available with locking nuts on request (version V).

In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



Standard adjustable version 'E'
(with bolt and nut)



Optional at the request of the customer:
variable version 'V' (with bolt and locking nut)

TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	LENGTH L1 (mm)	EXTENSION L2 (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg	
PZLG 32 D= 120 kN 32 t Max. front-axle load 10 t Individual certificate Profile UNP 100	1,100	860	100/30 ³⁾ Special dimen- sions available on request	200	8 x 50 (L ₂ = 1,100)	1	104	
	1,200						106	
	1,300						108	
	1,400						110	
	1,500			900	400		12 x 50 (L ₂ = 1,500)	112
	1,600			980				114
	1,700			1,000				116
	1,800			1,100				118
	1,900			1,200				120
	2,000			1,300				122
	2,100							124
	2,200							126
	2,300					130		
	2,400					132		

³⁾ Also available on request with low-maintenance silent bush (see page 50).

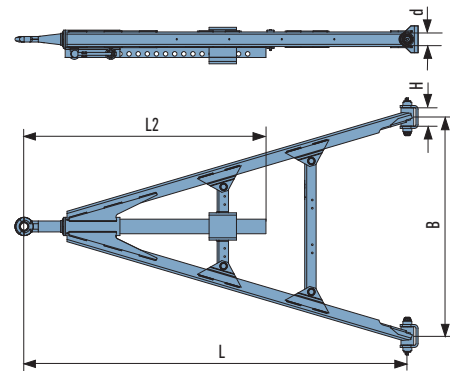
Ringfeder drawbars up to 48,000 kg

PZL series, length adjustable

(With ECE approval or individual certificate)

With towing eye Ø 40 mm (DIN 74054-40A) and length adjustment 12 x 50 mm as standard. All drawbars are also available with towing eye Ø 50 mm (DIN 74053-50A). Also available with locking nuts on request (version V).

In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



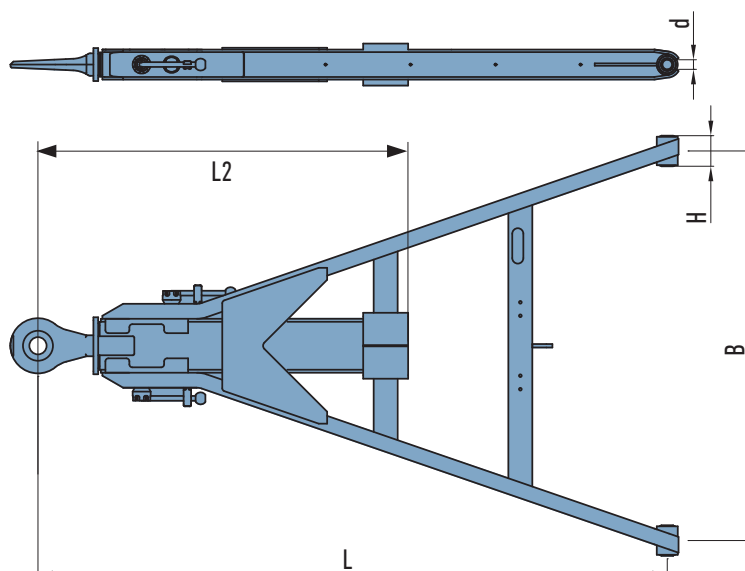
TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	EXTENSION L2 (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZL 27 D = 125 kN 27 t Max. front-axle load 10 t ECE no. E1*55R01/07*30 24 Profile 80/70/6 Towing bar Ø 80	1,000	860	100/30 ¹⁾ Special dimen- sions 70/26 80/28 80/30	8 x 50 mm (L ₂ = 975 mm) 12 x 50 (L ₂ = 1175 mm)	1	80
	1,100					82
	1,200					84
	1,300					86
	1,400					88
	1,500					90
	1,600					92
	1,700					94
	1,800					96
	1,900					98
	2,000			16 x 50 (L ₂ = 1375 mm)	2	100
	2,100					104
	2,200					106
	2,300					108
	2,400					110
	2,500					112
	2,600					114
PZL 32 D = 125 kN 32 t Max. front-axle load 12 t Individual certificate Profile UNP 100 Towing bar Ø 100	1,100	860	100/30 ¹⁾ Special dimen- sions available on request	12 x 50 (L ₂ = 1175 mm)	1	94
	1,200					96
	1,300					98
	1,400					100
	1,500					102
	1,600			12 x 50 (L ₂ = 1175 mm) 16 x 50 (L ₂ = 1375 mm)	2	104
	1,700					106
	1,800					108
	1,900					110
	2,000					116
	2,100					118
	2,200					120
	2,300					122
	2,400					124
	2,500					126

Figures: Adjustable version 'E' (with bolt and nut) and variable version 'V' (with bolt and locking nut), see page 43.

¹⁾ Also available on request with low-maintenance silent bush (see page 50).

PZL 48: with heavy-duty towing eye Ø 50 mm (type 56) and length adjustment 6 x 100 mm as standard. Also available with locking nuts on request (version V)

In all standard versions, the bearing eyes have plastic bushes. Other dimensions and towing eyes are available on request. Height adjustment devices from page 58.



TYPE	LENGTH L (mm)	WIDTH AT CENTRE B (mm)	BEARING EYES H/d (mm)	EXTENSION L2 (mm)	CROSS STRUTS Quantity	WEIGHT Approx. kg
PZL 48 ⁴⁾ D=190 kN 48 t Max. front-axle load 24 t ECE no. E1*55R01/07*30 25 Profile UNP 100	1,200	860	100/30 ³⁾ Special dimen- sions 102/32 ⁵⁾ 100/35 100/40 ⁶⁾	6 x 100 (L ₂ = 1150 mm)	1	92
	1,300					95
	1,400					97
	1,500					99
	1,600					101
	1,700	980			103	
	1,800	1,000		6 x 100 (L ₂ = 1150 mm)		105
	1,900	1,100				107
	2,000	1,200				109
	2,100	1,300		8 x 100 (L ₂ = 1350 mm)	2	115
	2,200	1,400				117
	2,300					120
	2,400					122
	2,500					125
	2,600					127

³⁾ Also available on request with low-maintenance silent bush (see page 50). ⁴⁾ Available with towing eye type 56 (heavy-duty towing eye) and type VBG as standard.

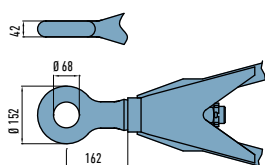
⁵⁾ With Kronrohr block ⁶⁾ With Brass bush.

RINGFEDER DRAWBARS – GENERAL INFORMATION

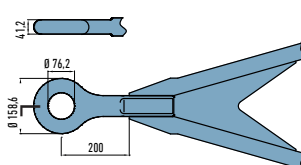
TOWING EYES AND BUSHES

With its range of drawbars, Ringfeder offers a comprehensive modular system that enables individual combinations. Below is an overview of the Ringfeder standard product range.

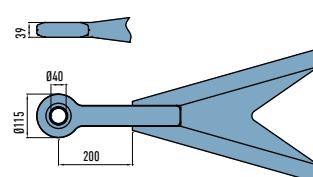
RINGFEDER TOWING EYES:



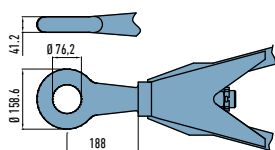
Screw-in towing eyes type BNA
29.05922
D value = 200 kN



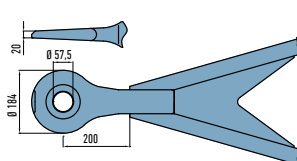
Towing eye type NATO VG-74059
D value = 125 kN



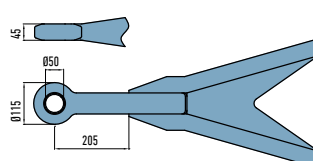
Towing eye: version for Switzerland
D value = 168 kN



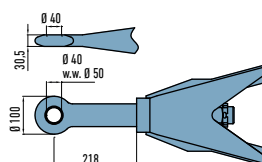
Screw-in towing eyes type NATO VG-74059
D value = 125 kN



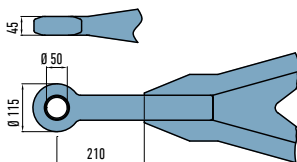
Towing eye VBG 15-173
D value = 190 kN



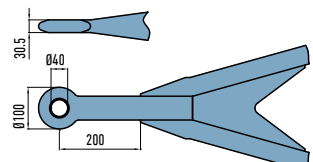
Towing eye VBG 16-0895
D value = 190 kN



Screw-in towing eyes DIN 74054-40B
Optionally DIN 74053-50B
D value = 125 kN

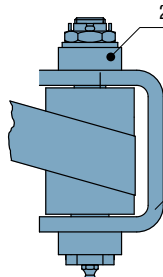
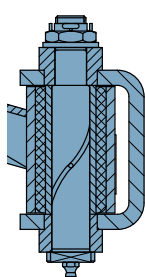


Towing eye in accordance with DIN 74053-50A
D value = 130 kN
Optionally towing eye type 56 similar to DIN 74053-50A
D value = 260 kN



Towing eye similar to DIN 74054-40A
With profile shaft
Optionally towing eye DIN 74054-40A
D value = 125 kN

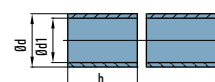
RINGFEDER BUSHES:



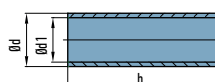
Spring bolt E11 (pair)
2x 09.801.98.18.0

Drawbar hanger (pair)
2x 02.1004.22.00

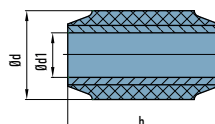
Shown with silent bush



Plastic bush



Brass bush



Silent bush

The dimensions for the bearing eye bushes can be found in the technical data sheets.

Ringfeder drawbars

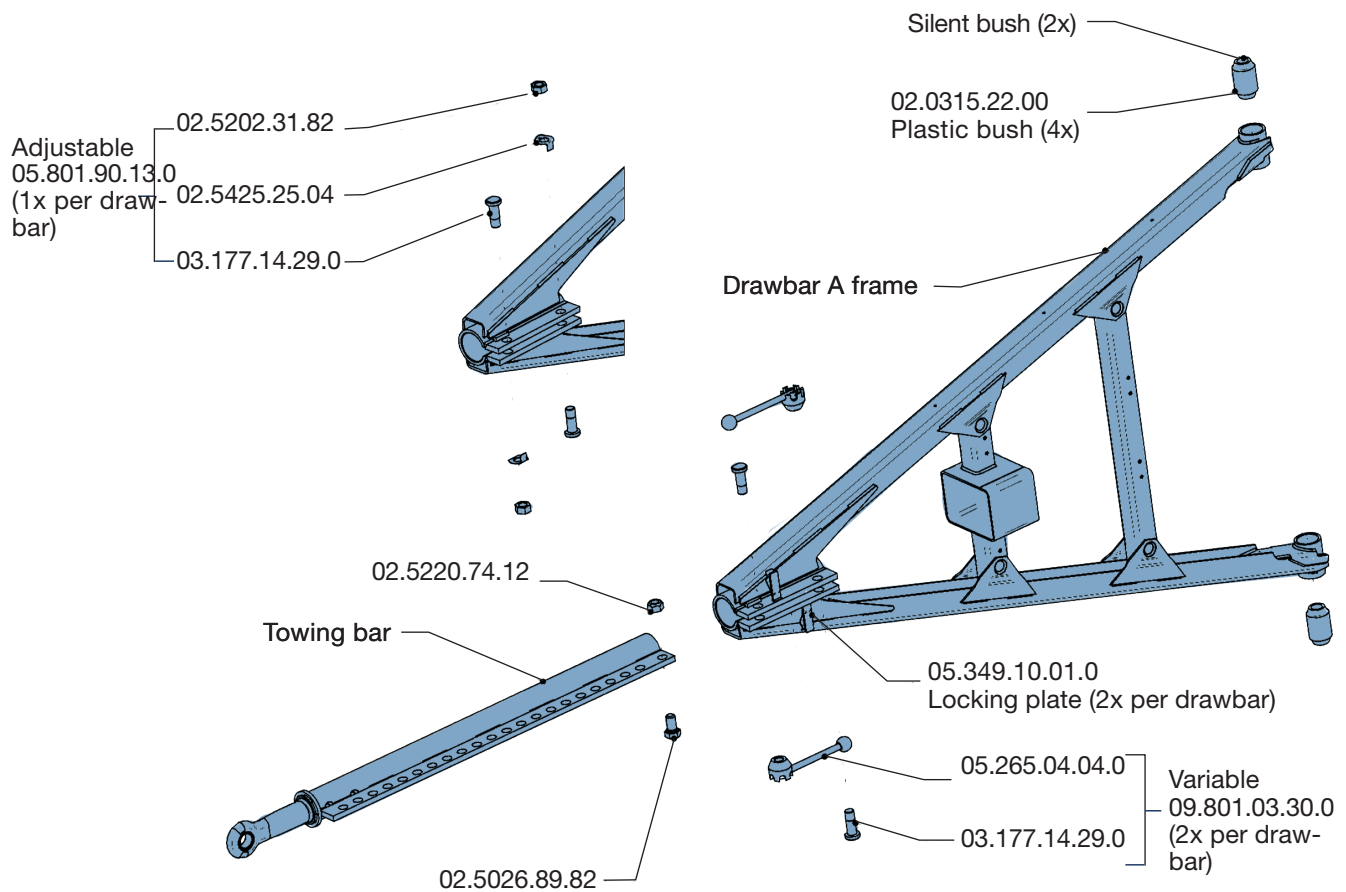
Spare parts

APPLICATION	DESIGNATION																RINGFEDER NO.		
	TBZ 27	TBZ 32	TBZ 48	SL 12	SL 27	ZGS 27	ZGS 32	PZM 26	PZMS 26	PZG 18	PZG 48	PZGL 32	PZL 27	PZL 32	PZL 48	PZLG 32			
FOR BEARING EYE	NUMBER PER DRAWBAR																		
Plastic bush 80/28	4x	4x	–	4x	4x	4x	–	4x	4x	4x	–	4x	4x	–	–	4x	02.0315.20.00		
Plastic bush 80/30	4x	4x	–	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	–	–	4x	02.0315.21.00		
Plastic bush 100/30	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	4x	02.0315.22.00		
Silent bush 100/30	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	02.0316.06.00		
Brass bush 100/30	2x	2x	–	2x	2x	2x	2x	2x	2x	2x	2x	2x	2x	–	2x	2x	02.0315.17.00		
Brass bush 100/40	2x	2x	2x	–	2x	2x	–	–	–	2x	–	–	–	–	2x		10.03.707258		
Kronrohr block	–	–	2x	–	–	–	–	–	–	–	–	–	–	–	2x		02.0314.13.00		
Towing bar Ø 80 with towing eye 40																			
Towing bar 12 x 50 length 1175	Adjustment opening 17												1x					09.028.45.02.0	
Towing bar 16 x 50 length 1375	Adjustment opening 21												1x					09.028.45.03.0	
Towing bar Ø 80 with towing eye 50																			
Towing bar 12 x 50 length 1175	Adjustment opening 17													1x					09.028.45.28.0
Towing bar 16 x 50 length 1375	Adjustment opening 21													1x					09.028.45.17.0
Towing bar Ø 80 with towing eye CH																			
Towing bar 12 x 50 length 1175	Adjustment opening 17													1x					09.028.45.52.0
Towing bar 16 x 50 length 1375	Adjustment opening 21													1x					09.028.45.85.0
Towing bar Ø 80 with towing eye VBG-15																			
Towing bar 12 x 50 length 1135	Adjustment opening 17													1x					09.028.45.95.0
Towing bar 16 x 50 length 1335	Adjustment opening 21													1x					09.028.45.90.0
Towing bar Ø 100 with towing eye 40																			
Towing bar 12 x 50 length 1175	Adjustment opening 17													1x		1x			09.028.51.02.0
Towing bar 16 x 50 length 1375	Adjustment opening 21													1x		1x			09.028.51.08.0
Towing bar offset 12 x 50 length 1,500 (from drawbar length 1,300)	Adjustment opening 17																1x	09.028.52.79.0	
Towing bar Ø 100 with towing eye 50																			
Towing bar 12 x 50 length 1175	Adjustment opening 17													1x		1x			09.028.51.09.0
Towing bar 16 x 50 length 1375	Adjustment opening 21													1x		1x			09.028.51.10.0
Towing bar offset 12 x 50 length 1,500 (from drawbar length 1,300)	Adjustment opening 17																1x	09.028.52.73.0	
Towing bar Ø 100 with towing eye VBG-15																			
Towing bar 12 x 50 length 1135	Adjustment opening 17													1x		1x			09.028.51.38.0
LOCKING MECHANISM	NUMBER PER DRAWBAR																		
Bolt with locking nut version ‘V’ plus locking plates												2x	2x	2x		2		09.801.03.30.0	
												2x	2x	2x		2		05.349.10.01.0	
Bolt with nut version ‘E’ including locking washer													1x	1x	1x		1		05.801.90.13.0
Bolt with locking nut version ‘V’ plus locking plates																2x		09.801.95.23.0	
																2x		05.349.10.01.0	
Bolt with nut version ‘E’ including locking washer																	1x		09.801.95.24.0

For PZS spare parts, see page 39.

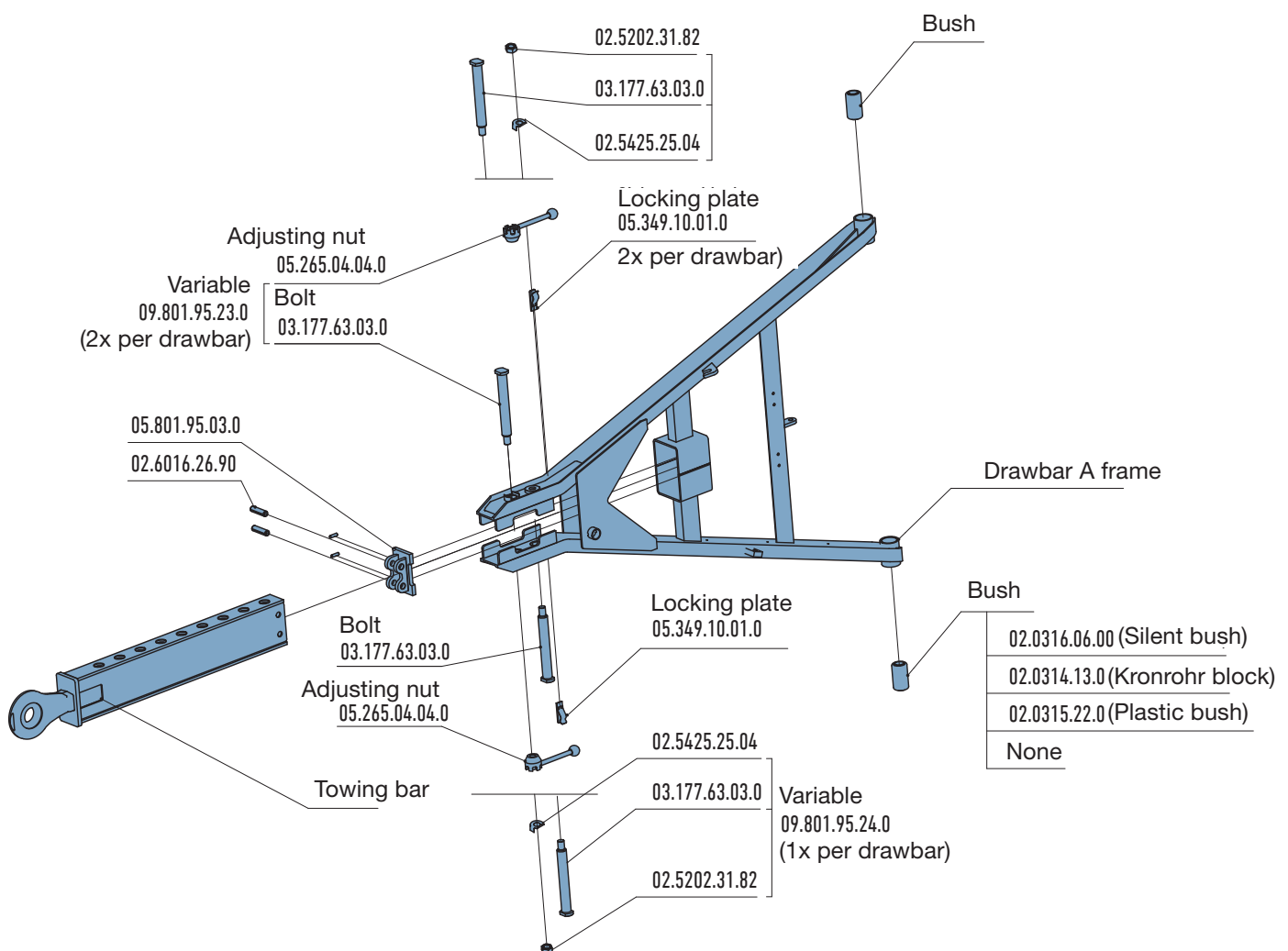
DRAWBARS

Spare Parts for PZL 27, PZL 32, PZGL 32



RELIABLE

Spare Parts for PZL 48



Ringfeder height adjustment devices

Klemmfix 72

(General type approval (German ABE))

The galvanized Klemmfix 72 is a height-adjustment device for drawbar installations that can swivel vertically.

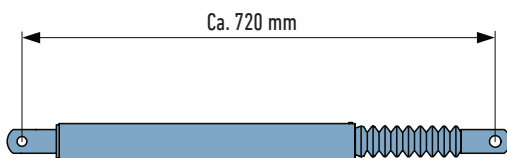
With the optimum setting, the towing eye can be adjusted freely from the horizontal position by at least 300 mm (measured at the towing eye) upwards and downwards. The drawbar installation can be set to the required height by a single person without the need for tools or other assistance. Without a height support device, the Klemmfix 72 can only be used for limited height

adjustment. For a drawbar weight of more than 75 kg, a height support device (e.g. return spring with clamp lock or spring washers) must also be fitted, which will take some of the weight of the drawbar (see diagram). See the assembly and operation instructions for further information.

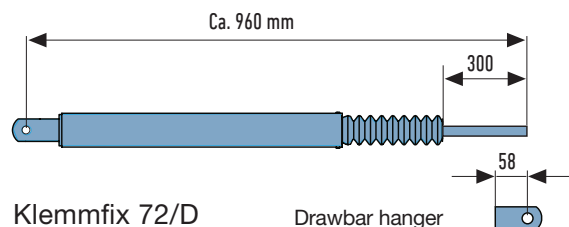
Ringfeder NO.:

Klemmfix 72/Z (tension) 51.98.01.0013

Klemmfix 72/D (compression) 51.98.01.0014

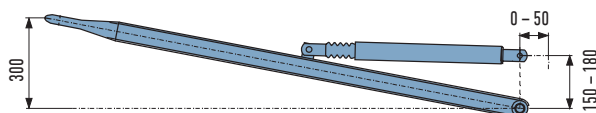


Klemmfix 72/Z

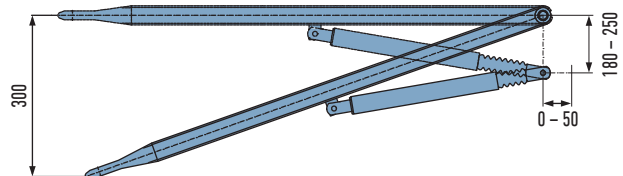


Klemmfix 72/D

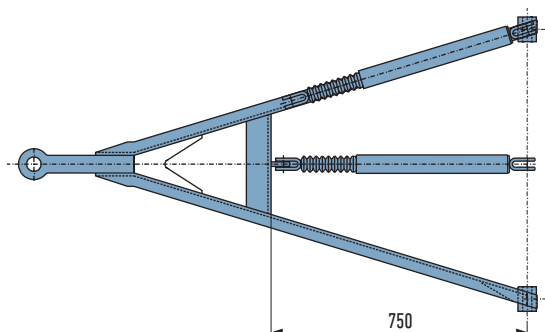
Drawbar hanger



Installation of Klemmfix 72/Z, effective under tension
Please read the installation and operating instructions.



Installation of Klemmfix 72/D, effective under compression
Please read the installation and operating instructions.



Connection of Klemmfix on longitudinal or cross strut

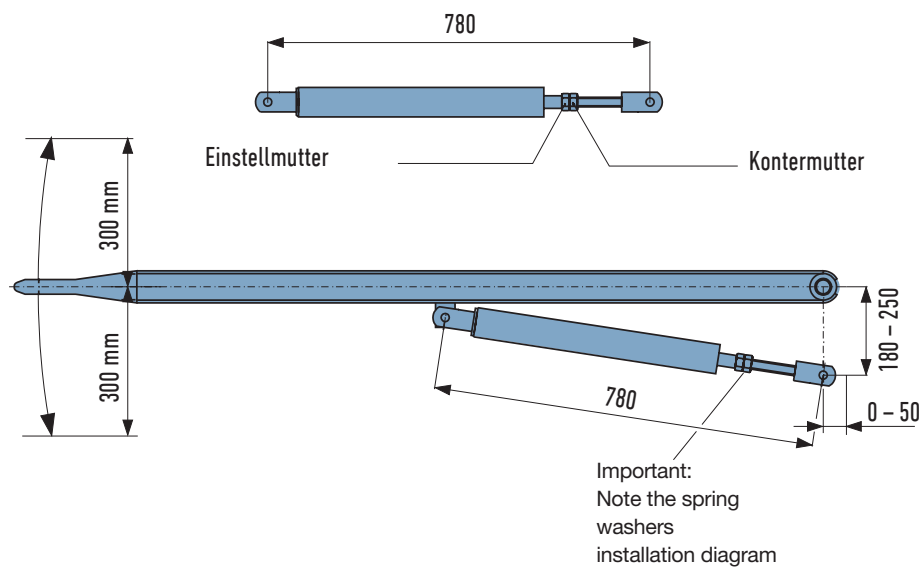
Ringfeder height support device

Compression spring pack

The galvanized compression spring pack are used only as a height support device for Klemmfix 72. The spring washers and Klemmfix 72 work together to enable optimum height adjustment. The spring washers must not be used alone to adjust the height of drawbars.



Ringfeder NO.:
Compression spring pack 51.98.03.0001



Ringfeder height support device

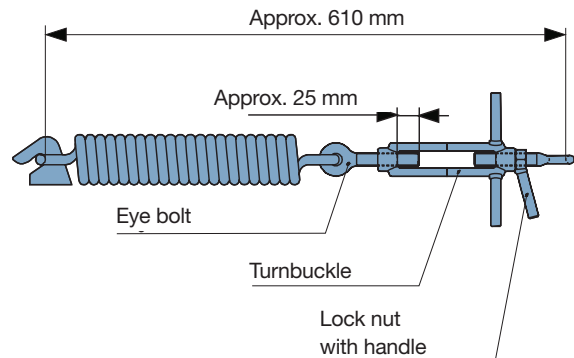
Return spring with turnbuckle

The return spring with turnbuckle can be used directly as a height adjustment device. The height is adjusted by turning the turnbuckle. The return spring used means that it is usually sufficient to use one return spring even for heavy drawbars (see diagram). In combination with Klemmfix 72, the return spring with turnbuckle is also used as a height support device.

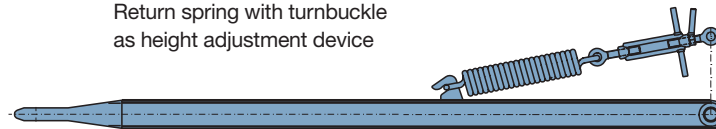
Ringfeder NO.:

Return spring
(cataphoretic dip-coating – KTL_{Zn}) with turnbuckle
09.801.03.18.0

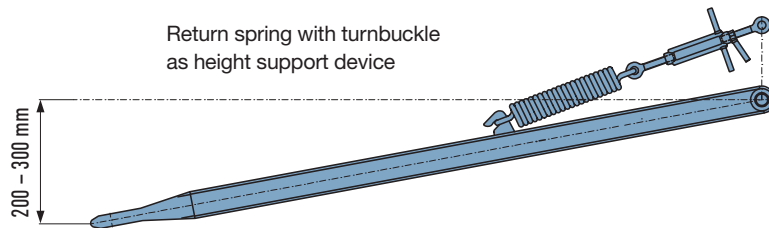
Return spring (galvanized) with turnbuckle
09.801.03.83.0



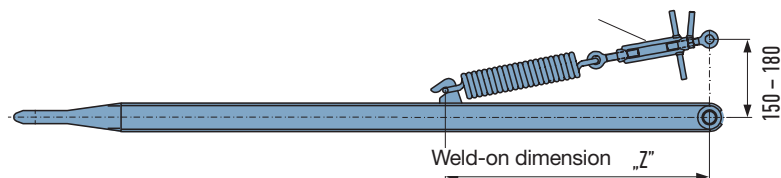
Return spring with turnbuckle
as height adjustment device



Return spring with turnbuckle
as height support device



Important:
Note the turnbuckle
installation diagram.



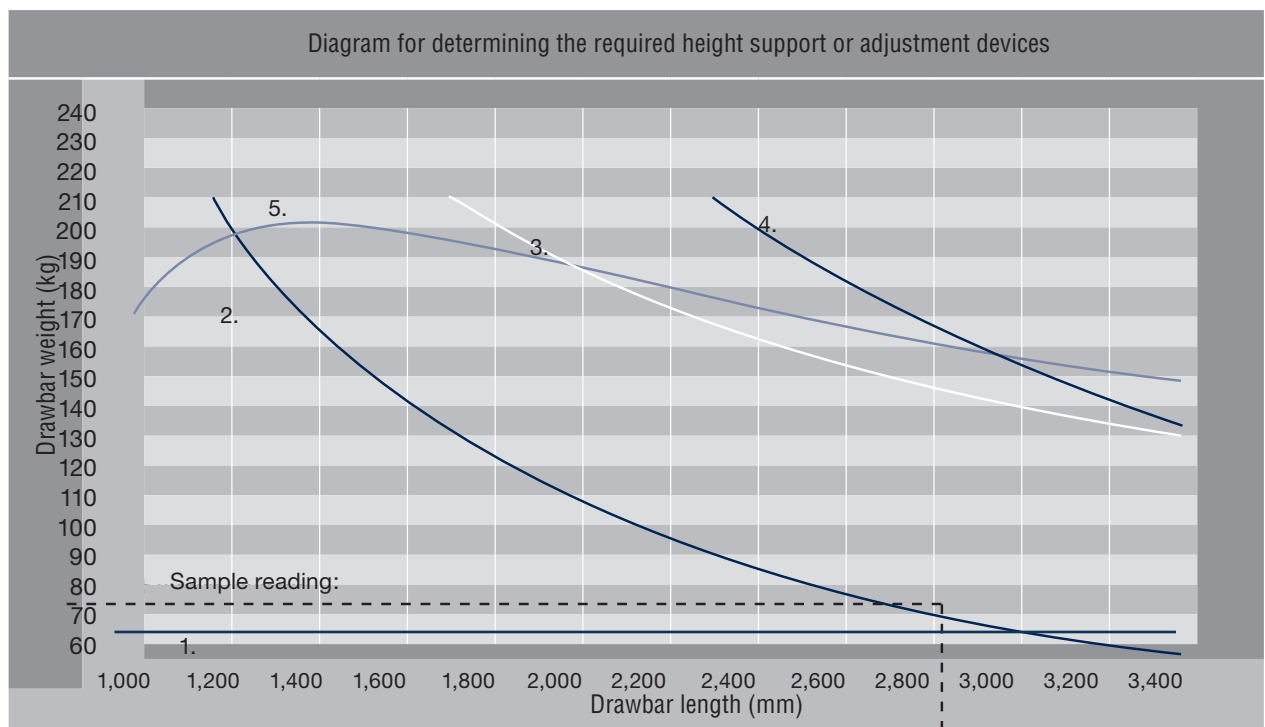
Installation of the return spring with turnbuckle on the drawbar

Ringfeder height adjustment and support devices

Choosing the products you need

To select which products are required for height adjustment for the drawbar that is being used, you need the following information:

1. Drawbar length (mm)
2. Drawbar weight (kg)



The following combinations can be selected using the diagram:

COMBINATION	HEIGHT ADJUSTMENT DEVICE	HEIGHT SUPPORT DEVICE
1.	Klemmfix 72 ¹⁾	-
2.	A return spring	-
3.	Klemmfix 72	A return spring
4.	A return spring	A return spring
5.	Klemmfix 72	Spring washers

¹⁾ Can only be used alone for drawbars up to 75 kg

Sample reading:

Drawbar: PZM L=3,000 mm m=103 kg

The diagram above shows the combination options 3, 4 and 5 (see table).



Produced in a certified company

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www.ringfeder.de · e-mail: zentrale@vbgroup.com

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